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ABSTRACT

This publication addresses the issue of low birthweight and what state legislatures can do to reduce its incidence, particularly in regard to ensuring prenatal care. Other than prevention of unwanted pregnancies, provison of good prenatal care is the most effective strategy for reducing the number of low birthweight babies. This text describes: (1) the causes of low birthweight in the United States; (2) reasons why legislators should be concerned about low birthweight; (3) what legislators can do to reduce its incidence; (4) federal assistance programs available to states; (5) the cost-effectiveness of prenatal care; (6) recent state activities designed to reduce low birthweight and infant mortality rates; and (7) ways states are paying for expanded prenatal care. Appendix A describes eight states' approaches to prevention of low birthweight. These approaches involve the development of successful prenatal care services; the definition of prenatal care as a right of all pregnant women; prevention of preterm labor through education; assessment of the need for prenatal care among counties and allocation of resources based on priority; a focus on high-risk pregnant women; the study of various state and city approaches to planning programs; and the use of state-specific data for presentation to legislators. Appendix B lists resources and offers a brief annotated bibliography. (BC)

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Saving Lives and Money: Preventing Low Birthweight

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Introduction

If the United States' infant mortality rate had been as low as Japan's, 19,350 American babies would not have died in 1985.[1] The high U.S. rate is brought about largely by babies being born too soon and too small, especially among blacks and low-income women.[2]

More than $2.5 billion is spent annually on intensive hospital care for newborns in this country, primarily for low birthweight babies.[3] In addition, about 11,000 of these babies have long-term disabilities that result from being too small.[4]

Among industrialized nations, the United States has one of the highest rates of infant mortality and one of the highest rates of low birthweight. Rates for black Americans are approximately twice those for whites.

Many premature births can be prevented through cost-effective interventions. State legislatures can play a significant role in reducing the incidence of low birthweight, thereby preventing infant deaths and disabilities, especially among low-income women. With such interventions, state governments will save both lives and money.

This publication addresses the issue of low birthweight and what state legislatures can do to reduce its incidence, with an emphasis on ensuring prenatal care. Other than preventing unwanted pregnancies, providing good prenatal care is both the most effective strategy and the best bargain available to state governments to reduce the number of low birthweight babies.

The text describes low birthweight and why it occurs; why legislators should be concerned about it; what legislators can do to help reduce its incidence; federal assistance programs that are available to states; the cost-effectiveness of prenatal care; recent state activities to reduce low birthweight and infant mortality rates; and how states are paying for expanded prenatal care.

Appendix A describes eight states' approaches to the issue, including the following: developing successful prenatal care services; defining prenatal care as a right of all pregnant women; preventing preterm labor through education; assessing the need for prenatal care among counties and allocating resources based on priority; focusing on high-risk pregnant women; studying various state and city approaches in planning a program; and using state-specific data to present to legislators.

Appendix B lists several resources for persons seeking further information. There also is a brief Annotated Bibliography at the back of the publication.

What Is Low Birthweight and Why Does it Occur?

Low birthweight is a major determinant of infant mortality in the United States. Infants weighing 2,500 grams (5.5 pounds) or less are almost 40 times more likely to die during their first 4 weeks of life than the normal birthweight infant. In addition, low birthweight survivors are at increased risk of health problems ranging from neuro-developmental handicaps to lower respiratory tract conditions.

—Institute of Medicine[5]

What is low birthweight? "Low birthweight" refers to babies weighing 5.5 pounds (2,500 grams) or less at birth. Babies weighing 3.3 pounds (1,500 grams) or less are classified as "very low birthweight."

In 1985, the most recent year for which state-by-state data are available, 6.8 percent of all U.S. births were low birthweight (LBW). The incidence for blacks was 12.4 percent, more than twice that of whites (5.6 percent).[6] In 1978, the surgeon general of the Public Health Service established the following goals concerning low birthweight: by 1990, the incidence of LBW should be no more than 5 percent of all births and the incidence for any county or racial or ethnic subgroup should not exceed 9 percent.[7] The Table lists LBW percentages for each state.

What causes low birthweight? Low birthweight results from babies being born too soon or from babies not growing adequately during the pregnancy. Preterm labor (labor occurring before 37 weeks of pregnancy) accounts for about two-thirds of LBW babies. "Intrauterine growth retardation" (IUGR) is associated with chronic medical conditions of the mother, such as diseases affecting blood circulation and the kidneys.[8] Birth defects and IUGR explain many of the babies who are LBW at full term. Unfortunately, the exact causes of preterm labor are not well understood. Some premature births are inevitable, at least for now. Nonetheless, a number of risk factors are known to increase a woman's chance of having a LBW baby. The following principal risk factors for LBW have been identified by the Institute of Medicine:[9]

- Medical risks in current pregnancy, such as poor weight gain, high blood pressure, infection, placental problems, and other factors;
- Behavioral and environmental risks, including smoking, poor nutrition, alcohol or drug abuse, toxic exposure, and high altitude;
- Health care risks, including absent or inadequate prenatal care and prematurity due to medical intervention;
- Demographic factors, including age (under 17 or over 34), race (black), low socioeconomic status, unmarried status, and low level of education; and
- Medical risks predating pregnancy, especially previous delivery of a LBW infant.

Other possible risk factors currently under study include stress and several medical conditions, such as hormone deficiency.

Risk assessments of pregnant women can successfully identify about 65 percent of pregnancies with eventual adverse outcomes.[10] Some of the risk factors can be eliminated or reduced, while others can be monitored closely.

A number of demographic risk factors contribute to the increased risk of low birthweight for blacks, including the following:

- A higher percentage of blacks live in poverty. In 1987, the percentage of blacks living below the federal poverty level (33.1 percent) was more than three times the 10.5 percent incidence for whites (see the Glossary for the federal poverty level).[11]

- A smaller proportion of black women receive adequate prenatal care. In 1985, 72.3 percent of white women received adequate prenatal care, while only 50.1 percent of black women received such care.[12] The percentage of black women receiving inadequate care (15 percent) was more than two and one-half times the 6.2 percent incidence for whites (see the Glossary for a definition of "adequacy of care").

- Blacks have a higher incidence of babies born to teenagers and single mothers. In 1985, 10.8 percent of white births were to teens, while 23 percent of all black babies were born to teenagers. Almost 15 percent of white births and 60 percent of black births were to single mothers in 1985.[13]

The Institute of Medicine (IOM) reports that blacks have a higher incidence of LBW than whites when controlled for other factors. The IOM concludes that the cumulative effects over time of black poverty and lower social status play a role in racial differences, but more research is needed.[14]

National LBW data for other minority and ethnic groups are limited. Nonwhites often are lumped into one category, which includes blacks. Hispanics are sometimes recorded as nonwhite, sometimes as white. Overall rates of infant mortality and low birthweight for nonwhites are lower than those for blacks, but higher than those for whites. Poverty and low educational attainment are high-risk factors for women of all ethnic groups. The presence of these and other high-risk demographic factors can be used to estimate the likelihood of high rates of low birthweight. If an ethnic group has a higher incidence of demographic risk factors, it is likely to have a higher than average LBW rate.

Why Should Legislators Be Concerned About Low Birthweight?

Legislators should be concerned about low birthweight because it costs both lives and money. Numerous studies indicate that publicly insured and low-income pregnant women are one and one-half to two times more likely than other women to give birth to low birthweight infants.[15] In the case of publicly insured women, the higher incidence of LBW is attributed largely to a lack of adequate prenatal care, rather than to their status as recipients of public programs. As discussed later, many Medicaid patients do not receive adequate prenatal care; those who do, have a much lower incidence of LBW infants (for example, see Utah in Appendix A).

State governments spend millions of dollars each year to purchase health care for LBW babies through Medicaid and other programs that cover low-income or uninsured persons. For example, Michigan spent $52 million in Medicaid funds to treat sick newborns in 1987, while paying just $5 million for prenatal care for Medicaid women.[16] Adverse pregnancy outcomes that may have been prevented or reduced with prenatal care accounted for between one-half and two-thirds of the $52 million.

Cost in lives. LBW babies are almost 40 times more likely to die during their first four weeks of life than normal birthweight infants.[17] In 1985, 40,030 babies, about 1 percent of all U.S. births, died before their first birthday.

The United States ranks 17th among industrialized countries in infant mortality, and its position has not improved since 1980.[18] The high U.S. rate (10.0 deaths per 1,000 live births in 1987) is brought about largely by the high incidence of low birthweight. The infant mortality rate for U.S. blacks is approximately twice the rate for whites. The Table lists infant mortality rates by state for whites and blacks.

In addition to goals for LBW (see page 1), the surgeon general also set 1990 goals for infant mortality, as follows: the national rate should be reduced to no more than nine deaths per 1,000 live births, and the rate for any county or racial or ethnic subgroup should not exceed 12 deaths per 1,000 live births.[19]

Since 1981, there has been a substantial slowdown in the rate of improvement of the U.S. infant mortality rate.[20] Ironically, one contributing factor is the ability to save smaller babies. Extremely premature babies are more frequently resuscitated today than they were five or 10 years ago, even though a majority of them eventually die. An increase in reported live births under 500 grams (just over one pound) would affect the incidence of low birthweight and infant mortality, but the extent to which such reporting occurred in the early 1980s is not clear.[21]

Financial Costs. Low birthweight is associated with costly medical care and high rates of chronic and disabling illnesses. The average 1986 hospital cost per discharge for a normal newborn in Maryland was $658, while the average cost for a LBW infant was $5,894.[22] The smallest babies cost even more. A 1985 study of Medicaid data in Utah revealed that the average initial hospital cost for babies weighing less than 3.5 pounds was $63,000. Although only 1.7 percent of babies born to Medicaid mothers in Utah weighed less than 3.5 pounds, they consumed $2.7 million, or 24 percent of all Medicaid expenditures for initial hospital costs for newborns.[23]

In addition to costing more for hospital services, approximately 16 percent of very low birthweight babies are born with moderate to severe disabilities and require additional costly medical and social services.[24] Disabilities include mental retardation, cerebral palsy, major seizure disorders, and blindness. Long-term health costs result from the following: medical needs; support services, such as family counseling, speech training, and screening services; special education; and institutional or foster care.

The Office of Technology Assessment estimates that the expected net cost of low birthweight is between approximately $14,000 and $30,000 per birth, to age 35.[25]

TABLE

State	Low Birthweight[a]				Infant Mortality[c]				Medicaid			
	White	Rank[b]	Black	Rank[b]	White	Rank[b]	Black	Rank[b]	Percent Poverty[d]	Federal Share[e]	Presumptive Eligibility[f]	OB Reimbursement[g]
Alabama	6.0%	41	12.0%	19	10.4	42	17.0	12	100%	73.29%	y	$ 450.00
Alaska	4.5	1	10.6	8	9.6	35	n/a	n/a	100	50.00		n/a
Arizona	5.9	38	12.4	28	9.4	32	12.4	1	100	62.12		n/a
Arkansas	6.6	47	12.5	29	10.9	48	14.2	3	100	74.21	y	500.00
California	5.3	14	11.9	15	9.2	20	16.3	9	185(4-90)	50.00		657.28
Colorado	7.4	51	13.1	37	9.1	18	15.9	7	60	50.00		392.00
Connecticut	5.7	28	13.5	40	8.5	6	20.9	28	185(1-89)	50.00		n/a
Delaware	5.7	29	12.9	33	11.6	49	25.8	33	100	51.90		321.78
Dist. of Col.	5.2	12	15.3	43	n/a	n/a	23.7	32	100	50.00		600.00
Florida	6.0	42	12.4	27	9.2	23	17.8	16	100	55.39	y	800.00/1,200.00
Georgia	6.1	44	11.7	14	9.5	33	19.0	21	100	63.84		606.38
Hawaii	5.2	13	9.5	1	7.5	1	n/a	n/a	100	53.71	y(1-89)	416.54
Idaho	5.5	19	n/a	n/a	10.5	44	n/a	n/a	67	70.47	y	5450.00
Illinois	5.4	15	13.5	41	9.3	24	21.4	29	100	50.00		405.00
Indiana	5.8	31	11.7	13	10.0	40	19.5	23	50	63.71	y	533.00
Iowa	5.0	9	10.2	3	9.4	30	n/a	n/a	150(1-89)	62.75		n/a
Kansas	5.5	21	12.1	21	9.0	15	14.4	4	100	55.20		459.40
Kentucky	6.5	46	12.2	24	10.3	41	20.5	26	125	72.27		n/a
Louisiana	5.9	32	13.1	38	8.6	8	17.2	13	100(1-89)	68.26	y(1-89)	516.30
Maine	5.1	10	n/a	n/a	9.2	21	n/a	n/a	185	67.08	y	500.00
Maryland	5.4	18	12.5	30	9.1	19	18.9	19	100	50.00	y	525.00
Massachusetts	5.4	17	10.3	4	8.2	3	20.8	27	185	50.00	y	1,185.00/1,608.00
Michigan	5.4	16	13.6	42	9.3	28	22.4	31	185	56.48		1,024.37*
Minnesota	4.6	2	9.8	2	8.8	10	15.5	5	185	53.98		455.00
Mississippi	5.9	37	12.2	25	9.3	26	18.9	20	185	79.65		531.00/637.57
Missouri	5.6	24	12.9	34	9.0	17	17.0	11	100	59.27		50%**
Montana	5.6	26	n/a	n/a	9.8	39	n/a	n/a	53.7	69.40		577.49
Nebraska	4.9	5	12.0	18	9.0	16	n/a	n/a	100	59.73	y	597.70
Nevada	6.1	43	12.3	26	8.7	9	n/a	n/a	36.8	50.25		708.57
New Hampshire	5.0	8	n/a	n/a	9.2	22	n/a	n/a	52	50.00		214.00
New Jersey	5.5	22	12.2	23	8.8	11	18.8	18	100	50.00	y	236.00
New Mexico	7.3	50	10.5	7	10.6	45	n/a	n/a	100	71.52	y	354.78
New York	5.6	25	11.9	16	9.4	29	16.1	8	100(1-89)	50.00		1,037.00
North Carolina	6.0	39	12.7	32	9.4	31	17.8	15	100	68.68	y	454.75
North Dakota	4.8	4	n/a	n/a	8.4	4	n/a	n/a	57.2	64.87		n/a
Ohio	5.7	30	11.9	17	9.3	27	16.9	10	100	59.10		n/a
Oklahoma	5.9	33	12.0	20	10.8	46	18.5	17	100	63.33		725.00
Oregon	4.9	6	11.6	11	9.7	38	n/a	n/a	100	62.11		853.24/1,146.78
Pennsylvania	5.5	20	13.4	39	9.5	34	20.4	25	100	57.35	y	312.50
Puerto Rico	9.0[h]	n/a	n/a	n/a	14.9[h]	n/a	n/a	n/a	n/a	50.00	y	n/a
Rhode Island	5.9	35	10.7	9	8.1	2	n/a	n/a	100	54.85		350.00
South Carolina	5.9	34	13.0	36	9.6	36	21.8	30	100	73.49		485.00
South Dakota	5.2	11	n/a	n/a	8.9	13	n/a	n/a	100	70.43		325.00
Tennessee	6.4	45	12.9	35	8.9	12	20.2	24	100	70.64		650.00
Texas	5.9	36	12.2	22	9.0	14	15.5	6	100	56.91		528.10
Utah	5.6	27	10.4	5	9.7	37	n/a	n/a	100	73.73	y	576.35
Vermont	6.0	40	n/a	n/a	8.5	7	n/a	n/a	185	66.23		350.00
Virginia	5.5	23	11.5	10	9.3	25	19.2	22	100	51.34		262.50
Washington	5.0	7	10.5	6	10.9	47	12.6	2	90	53.21		535.43
West Virginia	6.7	48	11.7	12	10.4	43	n/a	n/a	150	74.84		600.00
Wisconsin	4.6	3	12.6	31	8.5	5	17.4	14	120	58.98	y	590.22
Wyoming	7.1	49	n/a	n/a	12.2	50	n/a	n/a	100	57.96		553.50
United States	5.6		12.4		9.3		18.2				average:	473.11

Notes:

n/a Information not available.

[a] Percent of all live births, 1985. Source: Children's Defense Fund, based on data from the National Center for Health Statistics.

[b] State ranked 1 has lowest incidence.

[c] Deaths per 1,000 live births, 1985. Source: Children's Defense Fund, based on data from the National Center for Health Statistics.

[d] Eligibility threshold for pregnant women as percentage of the federal poverty level. Source: NCSL, 1988; dates are effective dates.

[e] 1988 federal medical assistance percentage for each state's Medicaid program. Source: Health Care Financing Administration.

[f] States marked with y have presumptive eligibility. Source: NCSL, 1988; dates are effective dates.

[g] Medicaid reimbursement rates for obstetrical care (specialist) including prenatal care, delivery, and postpartum care. Source: General Accounting Office data (1986) updated by the American College of Obstetricians and Gynecologists (1987); lower figures are for normal delivery and higher figures are for Caesarean section, except for Florida, which reflects low-risk and high-risk patients; *Michigan figure calculated by NCSL from existing data; **Missouri is 50% of prevailing charges.

[h] Source: NCSL; the Puerto Rico data reflect total population figures and not ethnic groups.

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What Can Legislators Do to Prevent Low Birthweight?

The weight of the evidence on both routine prenatal care and augmented prenatal care suggests that birth outcomes can be improved when women receive earlier or more comprehensive prenatal care.

—Office of Technology Assessment[26]

In its May 1988 presentation to the National Commission to Prevent Infant Mortality, the American College of Obstetricians and Gynecologists (ACOG) recommended five priority areas for action to reduce the rate of infant mortality, which also apply to low birthweight:

- Remove barriers to maternity care;
- Make family planning services available to all women;
- Provide public education on prenatal care and contraception;
- Research further the causes of premature labor; and
- Resolve the liability crisis.

These recommendations are important for legislative consideration at the national and state levels. Although an in-depth discussion of four of the strategies is beyond the scope of this publication, each is mentioned briefly later. The focus of this section is the first recommendation, removing barriers to maternity care, specifically prenatal care.

Except for preventing unintended pregnancies, prenatal care is the most cost-effective means of reducing the incidence of both low birthweight and infant mortality. Legislators can assess the need for prenatal care in their states, especially for publicly funded or uninsured pregnant women; determine the statewide and local barriers to care; and take steps to address the unmet needs and reduce the barriers to care.

Assessing the Need

Legislators can use state and local data to determine the incidence of low birthweight and the adequacy of prenatal care for specific populations and geographic areas. The data can be used to develop successful strategies to combat the problem for populations and areas with a high incidence of low birthweight or a low rate of adequate prenatal care.

Adequacy of care can be measured by using the Institute of Medicine's prenatal care index, developed by D.M. Kessner. The index classifies the adequacy of prenatal care by the number of prenatal visits in relation to the duration of pregnancy and the timing of the first visit (see the Glossary under "adequacy of care").[27]

The following examples illustrate how the federal government and several states used data to assess the needs of specific populations:

- A General Accounting Office (GAO) study found that 63 percent of Medicaid recipients and uninsured women interviewed in 32 communities in eight states obtained insufficient prenatal care.[28] The GAO analyzed the reasons for the lack of adequate care, many of which are listed later.

- Kansas uses a modified Kessner "adequacy of care" index to prioritize funding for its Maternal and Infant Program (see Appendix A). A statewide analysis using the index found that 670 women in Sedgwick County did not receive adequate prenatal care in 1986. The incidence of LBW in the county was 7.2 percent. In Scott County, 24 women were determined to have inadequate care and only 1.2 percent of births were LBW. This information helped Kansas officials to target assistance for Sedgwick, which was one of the first 10 counties in which a program was established.

- Massachusetts analyzed LBW data for both payer source (such as private insurance and Medicaid) and population subgroup (such as whites, blacks, Hispanics, teenagers, persons with less than a high school education, and mothers who are not married). The data revealed that 17.1 percent of black infants born to uninsured mothers during the last half of 1986 were low birthweight, while the incidence for privately insured whites was only 4.2 percent. The state's "Healthy Start" program for uninsured low-income pregnant women is intended to improve birth outcomes (see Appendix A).

- Utah data showed that in 1985 the incidence of LBW was 18.4 percent for Medicaid mothers making fewer than six prenatal visits, twice that of Medicaid mothers who made 10 or more prenatal visits (9 percent of births). Utah expanded its Medicaid program and created the "Baby Your Baby" program for Medicaid recipients, which includes an aggressive public education and outreach campaign (see Appendix A).

The GAO study and the Utah example illustrate a common problem among states, which is that women insured under Medicaid do not necessarily receive adequate prenatal care. There are a number of other barriers to care that may prevent both insured and uninsured women from obtaining adequate care. Some of those barriers are described in the following section.

Barriers to Care

About 25 percent of women in the GAO study indicated at least four barriers had prevented them from obtaining prenatal care earlier or more often. The most common barriers reported were the following:[29]

- Lack of money to pay for care;

- Lack of transportation to get to the provider's office;

- Not knowing of the pregnancy soon enough;

- Inability to get an appointment earlier;

- Lack of knowledge about what to do or where to go;

- Lack of care available for other children;
- Fear about being pregnant; and
- Lack of access to a doctor.

A study by the Children's Defense Fund concludes that "the most formidable and pervasive of all barriers to care are related to financial inaccessibility."[30] The study also cites a number of nonfinancial barriers that prevent or discourage prenatal care, including the following:

- Factors related to policy and health care systems, such as maldistribution of physicians, providers not accepting Medicaid, fragmented services, and separate finance and delivery systems (for example, having to apply for Medicaid at the welfare office instead of a clinic);
- Factors related to health care programs and services, such as program application and enrollment barriers, location of services and transportation, availability of child care for other children, limited clinic hours, long lead time to make appointments, long waits to see a provider, and provider attitudes and practices; and
- Factors related to personal attitudes, culture, and experiences, such as lack of knowledge about the importance of care, fear, especially among teenagers, language barriers, and poor communication by providers.

Several states have initiated efforts to overcome some of the identified barriers to care, as illustrated in the following section. One barrier, lack of access to a doctor, is discussed briefly here.

Difficulty finding a doctor for Medicaid clients relates directly to physician participation in Medicaid. Low reimbursement rates, administrative paper work, and the high cost of malpractice insurance are the primary reasons cited by doctors who refuse to participate in the Medicaid program.

The GAO study reported that the nationwide average Medicaid reimbursement rate for total obstetrical care was about $473 in 1986, ranging from a low of $255 in West Virginia to a high of $1,027 in Massachusetts. In contrast, the 1986 median physician charge for total maternity care reported in a survey by the American College of Obstetricians and Gynecologists was $1,000.[31] Both West Virginia and Massachusetts raised their rates since that time (see the Table for state reimbursement rates).

Although just 2 percent of the women in the GAO study cited difficulty in finding a doctor, midwife, or nurse as the most important barrier to care, 15 percent of those receiving inadequate care cited "no doctor would see me" as a barrier. The report concluded that most of the women were able to obtain prenatal care from a local hospital or public health clinic. The GAO asserts that "states could better use their limited resources to expand Medicaid eligibility for prenatal care services for women who do not currently qualify for Medicaid rather than increasing Medicaid reimbursement rates to improve access to mainstream health care for women who meet current eligibility requirements."[32]

Many provider groups and child advocacy groups would disagree. As mentioned previously, delays in getting appointments, long waits in clinics, and large distances to travel contribute to delays in obtaining prenatal care. Advocates maintain that more physicians would help alleviate a number of the barriers to care. The issue of provider reimbursement may be more

controversial in states with the lowest Medicaid rates and in states where more and more providers refuse to participate in the program. For example, the number of private Colorado doctors willing to provide pregnancy services under Medicaid fell by 90 percent in 1987.[33] Physicians in half of California's 58 counties no longer accept new Medi-Cal maternity cases.[34]

Taking Steps to Address Needs and Reduce Barriers

Several states are addressing barriers to prenatal care, including simplifying the Medicaid application process and encouraging physician participation in Medicaid, as illustrated by the following examples:

- South Carolina reduced its 44-page application to 24 pages and provides caseworker assistance to fill it out.

- Florida placed 400 eligibility staff in 216 locations outside of social services departments, such as public hospitals and local health departments. Because eligibility technicians often are admonished to eliminate errors in order to avoid federal monetary sanctions for the state, they tend to scrutinize applications and are sometimes seen as adversaries by potential clients. State administrators discovered the need to emphasize to the technicians that the state's goal is to enroll all eligible pregnant women, not to keep them out of the program.

- Kansas created a "Prenatal Express" project for Medicaid enrollment (see Appendix A).

- At least nine states increased Medicaid reimbursement rates for obstetric providers in 1987.

- California recently increased its Medi-Cal obstetric reimbursement rate to $763 and added an incentive payment of $150 for providing early and continuous prenatal care.

Eight state programs that address prenatal care needs are highlighted in Appendix A. In addition, there are several federal programs that help states improve access to prenatal care for low-income women. Those programs, and recent federal changes in the Medicaid program, are described later, beginning on page 14.

The National Commission to Prevent Infant Mortality recommended several actions that state governments can take in its August 1988 report, *Death Before Life: The Tragedy of Infant Mortality*. Among the commission's many recommendations are the following:

- Develop and implement statewide plans for preventive maternity and infant care that include coordinated, comprehensive services;

- Establish "State Maternal and Child Health Councils" to monitor activities, progress, coordination of services, and accessibility to services in every community;

- Expand Medicaid eligibility to the maximum allowed, which is 185 percent of the federal poverty level;

- Eliminate assets tests for pregnant Medicaid applicants;

- Adopt "continuous eligibility" under Medicaid, so that once a pregnant woman is determined to be eligible, her eligibility continues throughout the pregnancy;
- Simplify Medicaid application forms and streamline the eligibility process through options such as "presumptive eligibility," which allows providers to render immediate care to pregnant women who appear to be eligible for Medicaid, even before they formally apply (see p. 15);
- Establish a "home visitors program" for pregnant women, especially those who are at high risk;
- Determine why providers are reluctant to participate in public programs and develop strategies to improve participation;
- Encourage the establishment and expansion of certified nurse midwifery training programs; and
- Collect and report birth and death data on factors associated with pregnancy and delivery, including medical, social, and demographic factors.

Other Issues

Several other issues related to reducing the incidence of LBW babies are discussed here briefly. The issues include unintended pregnancies, medical liability, private insurance, uncompensated hospital costs, and researching premature birth.

Unintended pregnancies. Family planning services and education help prevent unintended pregnancies and increase the interval between births. An interval of less than six months between ending one pregnancy and starting another is associated with a sharply elevated rate of low birthweight. Teenagers and unmarried women experience higher rates of LBW and also report higher rates of unintended pregnancies.[35]

While 12.7 percent of all U.S. births in 1985 were to teenagers, teen mothers gave birth to 17.6 percent of all LBW babies.[36] The Institute of Medicine reports that youth is not an independent risk factor for low birthweight, but teenage mothers are more likely to be black, of low socioeconomic status, less educated, unmarried, and less likely to receive adequate prenatal care than their older counterparts.[37] Of the 477,705 babies born to teens in 1985, 58.7 percent were born to unmarried mothers.[38]

In addition to added medical costs incurred because of LBW, teen births are costly in other ways. For example, the Southern Regional Project on Infant Mortality reports that in a single year (FY 1986-87), the 17 southern states in the project spent $3.57 billion on welfare, medical, and food assistance costs for families headed by a young woman under the age of 20.[39] The figure does not include costs for additional services, such as public housing, child protective services, foster care, special education, rehabilitative services, or institutional care.

Many state and community-based plans to prevent teen pregnancy call for the establishment of teen "hotlines," a statewide K-12 comprehensive health and family life education curriculum, school-based comprehensive health clinics, and parent education programs.[40] A Mississippi program is highlighted on page 18.

Medical liability. Medical malpractice issues affect the availability of obstetricians and family practitioners willing to provide prenatal care and deliver babies, especially for medically high-risk women. Premiums for malpractice insurance have climbed faster for obstetrics than for any other medical specialty. In 1982, the average obstetrical premium cost $10,900 per year. By 1987, the average price had jumped to $37,000.[41]

A recent ACOG survey revealed that 12.4 percent of obstetrician-gynecologists (ob/gyns) in the country had given up obstetrics by 1987 due to liability pressures. Of particular concern is a decrease in the number of ob-gyns treating medically high-risk women. In a 1985 survey, less than 2 percent of the ob-gyns surveyed indicated that they devoted 10 percent or less of their practice to high-risk care, compared with 45 percent of respondents in 1987.

The situation is worse in some parts of the country than others, as illustrated in the following examples:[42]

- ACOG data show that 25 percent of Florida's ob/gyns no longer practice obstetrics;
- In Texas, 37 percent of family physicians no longer practice obstetrics;
- Half of Nevada's rural family doctors have stopped practicing obstetrics;
- In Alabama, 28 counties, and in Colorado, 19 counties, do not have an obstetric provider; and
- Ob/gyns pay annual insurance premiums as high as $152,900 in Florida and $70,100 in Michigan.

The Virginia General Assembly passed unprecedented legislation in 1987 to create a Birth-related Neurological Injury Compensation Fund. The $20 million fund ensures lifetime care of infants with severe neurological injuries sustained during labor, delivery, and resuscitation. Speedy compensation for net economic loss is provided as the exclusive remedy in such cases. The money comes from a $5,000 annual fee from physicians who practice obstetrics and who wish to participate, and a $50 per delivery fee (to a maximum of $150,000) from hospitals that wish to participate. All other physicians are required to pay a $250 annual fee. Should this funding be inadequate, insurance carriers may be assessed. The legislation also requires participating obstetric providers to assist the state in developing a health care program for low-income women. Florida has enacted similar legislation.

In 1988, the North Carolina General Assembly appropriated $240,000 for a Rural Obstetrical Care Incentive Program to encourage family physicians and obstetricians to offer prenatal and obstetric care to women in counties that have no or limited services. The one-year pilot program is to pay the difference between malpractice insurance premiums for general practice and obstetric practice for physicians willing to participate in designated counties, up to a maximum of $6,500 per physician.

Private insurance. An estimated 37 million Americans do not have health insurance, which means they are not even covered by Medicaid. In addition, private insurance policies do not always cover the costs of maternity care or newborn care. Approximately five million privately insured women of reproductive age do not have maternity benefits. An estimated 333,000 insured women without maternity benefits gave birth in 1985.[43] Even policies that provide maternity benefits may exclude new enrollees who already are pregnant or may require a waiting period for eligibility.

Minnesota adopted legislation in 1987 that requires newly issued or renewed insurance policies to include maternity benefits with the same coverage provided for other illnesses. Hawaii and New York have had similar laws for more than a decade, but each allows a waiting period of nine months or more before maternity benefits must be covered for a newly insured woman. In 1988, Minnesota exempted perinatal services from copayment or deductible charges under health insurance policies.

Mandating specific insurance requirements is a controversial legislative issue and several states are studying insurance mandates in general. Self-insured employers are exempt from such state mandates because federal law excludes them from state regulation.

A recent Colorado Supreme Court decision requires all employers who provide comprehensive group health insurance for employees to include pregnancy care coverage.[44] The state ruling goes beyond the federal Pregnancy Discrimination Act of 1978, which requires employers who offer group health insurance and who have 15 or more employees to include maternity coverage in their insurance programs.

The National Commission to Prevent Infant Mortality maintains that the primary responsibility for ensuring financial access to maternity and infant care rests with the private sector and employers. The commission recommends the following actions that states and the U.S. Congress can take to increase insurance coverage for Americans:

- States should require group health insurance policies to eliminate waiting periods and pre-existing condition clauses for pregnancy related care;
- States should require that health insurance risk pools for medically uninsurable people include maternity and well-baby care;
- The Congress should eliminate exemptions in the Pregnancy Discrimination Act to include employers with fewer than 15 employees and dependents of employees who are not spouses (to cover teenage daughters); and
- Congress should allow self-employed and unincorporated businesses to deduct the full cost of health insurance as a business expense.

Uncompensated hospital costs. Maternity and newborn care accounts for about 27 percent of unpaid hospital bills.[45] State and local governments paid for $1.1 billion of the nation's total uncompensated hospital costs in 1985, which left $6.3 billion to be subsidized by private payers and hospitals.[46] Most state programs that provide prenatal care to low-income women who are not eligible for Medicaid do not cover hospital costs for delivery. Only 6 percent of the 660,000 women who received prenatal care through clinics supported by federal Maternal and Child Health funds in 1986 obtained assistance to pay their hospital bill.[47]

Paying hospital costs for unpaid maternity bills is just one part of a larger problem confronting legislatures. Paying for hospital and other health care services for low-income persons without insurance is a major legislative issue across the country, and many states are addressing it. (For further information contact NCSL.)

Researching premature labor. Although state legislatures do not play a direct role in scientific research concerning premature labor, they can benefit from such studies. Research can help lawmakers and other policymakers refine their programs and choose the most effective strategies to reduce the incidence of premature labor and low birthweight for women whose maternity care is funded by public dollars.

For example, research has demonstrated that smoking cessation during pregnancy reduces the incidence of LBW. On the other hand, a widely known strategy to reduce the incidence of preterm births, the "Creasy method," recently showed no significant results overall in a national study sponsored by the March of Dimes.[48] The Creasy method uses risk assessment for pregnant women, intensive patient education for high-risk women about the signs of preterm labor, and education for professionals about educating patients and about interventions to arrest preterm labor. Florida's "Preterm Birth Prevention Project" uses the Creasy method, which is described in Appendix A. The recently reported results can be used to reassess the approach used by Florida and other states.

Is Prenatal Care Cost-Effective?

> *For every low birthweight birth averted by earlier or more frequent prenatal care, the U.S. health care system saves between $14,000 and $30,000 in newborn hospitalization, rehospitalizations in the first year, and long-term health care costs associated with low birthweight.*
>
> —Office of Technology Assessment[49]

The estimate of cost savings, published by the Office of Technology Assessment (OTA) in 1988, provides a range within which costs associated with LBW are likely to lie. The estimate calculates long-term costs only to age 35.

The Institute of Medicine (IOM) concluded that for every $1 spent for prenatal care for high-risk women, $3.38 would be saved in the total cost of caring for low birthweight infants requiring expensive care. The IOM analysis focused on a high-risk population of women and estimated the increased expenditures required to provide them with routine prenatal care from the first trimester to the time of delivery. Projected savings were based on the assumption that the incidence of LBW for the target group would be reduced from 11.5 percent (in 1985) to 9 percent, which is the 1990 LBW goal set by the surgeon general for high-risk groups.[50]

In a study of the cost of extending Medicaid eligibility to all pregnant women in poverty, the OTA concluded that encouraging poor women to obtain early prenatal care through expanded Medicaid benefits is a good investment for the nation. The OTA based its conclusion on studies that revealed benefits of prenatal care in reducing LBW that were at least twice as great in reduced health costs as required to pay for the expansion of Medicaid services.[51]

Several states have shown cost savings or have estimated expected savings through improved prenatal care. The following findings are reported by three states:

- A pilot program providing prenatal care in California showed savings of between $1.70 and $2.60 in short-term costs (through the first year of life) for each dollar spent on the project (see Appendix A).

- Estimates for Utah indicate that almost $3 could be saved in delivery and intensive care costs for Medicaid recipients for each dollar spent on prenatal care (see Appendix A).

- An Alaska study predicted that, if all Alaska women who now obtain fewer than five prenatal visits were to receive 14 visits, 83 LBW births per year might be prevented. In addition, an estimated eight fewer babies would die each year, intensive care for 51 babies would be avoided, and the need for long-term institutional care for 1.7 infants would be eliminated.[52]

In order to achieve the most effective and cost-efficient programs, state legislatures and program administrators should build evaluation mechanisms into their plans. For example, the New Jersey HealthStart program, described in Appendix A, has a built-in evaluation process to determine whether the program is doing what it is intended to do.

Which Prenatal Care Components Are Effective?

Although the evidence clearly supports the effectiveness of prenatal care, it is less revealing about the size of the effect that can be expected from increasing the quantity or quality of prenatal care received by any segment of the population.

—Office of Technology Assessment[53]

General guidelines issued jointly by the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics call for prenatal care to begin as early in the first trimester as possible and to include 13 to 15 prenatal visits during the 37 to 40 weeks of a normal pregnancy, as follows:[54]

- Every 4 weeks until the 28th week;
- Every 2 to 3 weeks until the 36th week; and
- Every week until delivery.

ACOG recommendations also include risk assessments to identify factors that may require special management, such as high blood pressure, a history of problem pregnancies, diabetes, and some of the other principal risk factors listed on page 1. South Carolina sponsors a program for pregnant women determined to be at high risk for complications (see Appendix A).

Good prenatal care encompasses more than routine medical exams and screening for high-risk factors. Other important prenatal care services include nutrition, patient education, and support services. A combination of these components has been shown to be effective in reducing LBW rates (see Appendix A for California's pilot project).

State programs that provide comprehensive prenatal care to low-income women generally include the following components:

- Outreach services to increase access to care, such as media advertising, pamphlets inserted in public utility bills, community meetings, transportation, and volunteers or staff who promote prenatal care to community members;

- A schedule of prenatal visits according to ACOG recommendations, including screening for high-risk status;

- Nutrition services, such as vitamin and mineral supplements, evaluation and counseling for problems (for example, deficient calorie or vitamin intake, overweight or underweight condition, excessive consumption of food that is not nutritious, and use of diet pills), and referral to WIC, the Supplemental Food Program for Women, Infants, and Children;

- Psychosocial services, such as identifying problems (for example, anxieties, high-risk behaviors, depression or other psychiatric problems, medical problems, or lack of child care, housing, transportation, and emotional support), developing a treatment plan, and referring clients to needed services;

- Case management services to improve compliance with prenatal care recommendations, such as making and keeping appointments; and

- Health education, including prenatal and parenting classes, what to do and what not to do during pregnancy, the benefits of delaying another pregnancy, and how to prevent an unwanted subsequent pregnancy.

Ideally, prenatal care begins before a woman becomes pregnant. The general health of the mother is an important factor in prenatal care. The period of greatest environmental sensitivity for a developing fetus is between 17 and 56 days following conception.[55] Some women and teenage girls may not yet know that they are pregnant during this time and may not know the hazards and consequences of high-risk behaviors. In addition, it is not uncommon for teenage girls to deny their pregnancy, both to themselves and to others. Teens and other women can be taught to understand the likelihood of getting pregnant, how to prevent an unwanted pregnancy, to recognize the signs of pregnancy, and the importance of avoiding high-risk behaviors and seeking early care if they do become pregnant.

North Carolina has a "Preconceptional Health Promotion Project" offered by health departments and family planning clinics. Interested patients who are anticipating pregnancy are educated about the effects of alcohol, tobacco, drugs, chemicals, and nutrition on a developing fetus. These women also are assessed for medical conditions that may complicate pregnancy, such as diabetes, epilepsy, and phenylketonuria ("PKU," an inherited disease that may cause mental retardation). Women for whom risk factors exist are referred for medical. nutritional, and psychosocial counseling to best prepare themselves for the anticipated pregnancy.

What Federal Assistance Is Available to States?

Medicaid, the Maternal and Child Health Block Grant, and the Supplemental Food Program for Women, Infants, and Children (WIC) are the major federal assistance programs available to improve maternity care for low-income women.

Medicaid

Medicaid is a federally matched, state-administered health insurance program for eligible low-income persons. The federal government establishes guidelines for the program and pays a portion of each state's medical assistance payments, ranging from a low of 50 percent to a high of almost 80 percent (see the Table). States have broad discretion in setting eligibility levels for Medicaid, which vary widely among states, based essentially on financial eligibility for Aid to Families with Dependent Children (AFDC).

Between 1975 and 1984, the percentage of poor persons covered by Medicaid nationwide dropped from 63 to 46.[56] Several recent congressional changes reversed the trend for pregnant women and young children. Listing specific changes for young children is beyond the scope of this publication. Changes for pregnant women include the following:

DEFRA. The Deficit Reduction Act of 1984 required states to provide Medicaid coverage for pregnant women who would qualify for AFDC and Medicaid when their children are born, and to pregnant women in two-parent families where the primary wage earner is unemployed.

COBRA. The Consolidated Omnibus Budget Reconciliation Act of 1985 required states to provide Medicaid coverage to pregnant women in two-parent families that meet AFDC income and resource standards, even when the primary wage earner is employed. The act also provided the following:

- A mandate for an additional 60 days of coverage after delivery for all women whose Medicaid eligibility was based solely on their pregnancy;
- Permission for states to provide enriched Medicaid services, such as health education and nutritional counseling, to pregnant women without extending such benefits to other clients; and
- Permission for coverage of case management services, such as outreach, referral, and service coordination.

OBRA-86. The Omnibus Budget Reconciliation Act of 1986 (sometimes referred to as SOBRA) made the following changes:

- Allowed states to provide Medicaid coverage for maternity care benefits to pregnant women with family incomes up to 100 percent of the federal poverty level (FPL) without entitling them to other cash assistance. A majority of states have adopted this option (see the Table);
- Allowed states to provide outpatient maternity care services to pregnant women presumed to be eligible for Medicaid, provided that they apply for Medicaid within 14 days. This "presumptive eligibility" allows reimbursement to qualified providers for up to 45 days, even if Medicaid eligibility is ultimately denied (see the Table for the states that have adopted this option);
- Allowed states to eliminate the use of an assets test to determine Medicaid eligibility for pregnant women; and
- Allowed states to provide continuous coverage to Medicaid-eligible pregnant women without having to reverify eligibility until 60 days following termination of pregnancy.

OBRA-87. The Omnibus Budget Reconciliation Act of 1987 allowed states to provide Medicaid coverage for maternity care benefits to pregnant women whose family incomes are at or below 185 percent of the FPL. States may impose a premium for services up to 10 percent of the amount by which a family's income exceeds 150 percent of poverty. A few states have adopted this option (see the Table).

The Medicare Catastrophic Coverage Act of 1988. The act requires states to provide Medicaid coverage of prenatal care and other pregnancy-related services to women with family incomes up to 75 percent of the FPL by July 1, 1989, and up to 100 percent of the FPL by July 1, 1990. To prevent states from using resources for other needy persons to pay for the new coverage, states are prohibited from reducing cash assistance payments for AFDC below levels in effect on May 1, 1988.

MCH Block Grant

The Maternal and Child Health (MCH) block grant program represents the major federal maternity care funding alternative to public and private insurance.[57] The block grant, initiated in 1981, consolidated seven existing federal programs, including the Title V Maternal and Child Health program authorized under Title V of the Social Security Act. (Some persons continue to use the term "Title V" when referring to MCH block grant funds.)

The MCH block grant provides money to states for maternal and child health care to low-income, underserved pregnant women, infants, and children. States may determine services to be provided, with the exception of inpatient care, which is restricted to high-risk women and certain children. In 1986, $457 million was appropriated to the states, which used a portion of the money for free or subsidized prenatal care in public health clinics, health education, outreach to pregnant women, and transportation services.

The Southern Regional Task Force on Infant Mortality reported that all participating southern states agreed that MCH block grant funds were not sufficient to meet the needs of their clients.[58] The expanded Medicaid eligibility options give states the opportunity to cover some persons under Medicaid who are currently served with MCH funds and to use the block grant funds to expand MCH services or eligibility criteria.

WIC

The Supplemental Food Program for Women, Infants, and Children (WIC) provides nutrition education and supplemental foods, such as infant formula, milk, eggs, and cereals to low-income pregnant or nursing women, infants, and young children who are at "nutritional risk." States may set maximum eligibility limits between 100 and 185 percent of the federal poverty level, and WIC assistance may supplement assistance received by women who are eligible for food stamps. Nutritional risk, as determined by a qualified professional, includes a history of poor pregnancy outcomes, iron-deficiency anemia, and inadequate dietary patterns.[59]

Unlike Medicaid, the WIC program does not require a state match to receive federal funds. Federal WIC appropriations ($1.8 billion in FY 1988) support less than half of those persons eligible for the program.[60] In FY 1988, nine states and the District of Columbia supplemented federal WIC funds, including: Illinois, Indiana, Massachusetts, Michigan, Minnesota, New York, Pennsylvania, Texas, and Washington. In addition, Alaska, Arizona, Iowa, New Jersey, and Rhode Island provided contingency funds for WIC in case all federal allocations were expended.[61]

Other

Community/Migrant Health Centers. The Community/Migrant Health Centers program allocates funds from the U.S. Public Health Service for primary health care services in medically underserved areas. Services include preventive care, family planning, diagnostic and emergency care, and transportation.

EPSDT. The Early and Periodic Screening, Diagnosis, and Treatment Program (EPSDT) is a mandatory service under Medicaid. The program can provide services targeted to age-specific, at-risk infants, children, and youth. For example, EPSDT may be used to provide pre-pregnancy risk education for children and teenagers, and prenatal care for pregnant teens.

Commission Recommendations

Among the recommendations by the National Commission to Prevent Infant Mortality for federal actions are the following:

- Expand Medicaid to cover all pregnant women and infants who have family incomes up to 200 percent of the FPL;
- Require that all pregnant women in the Medicaid program be screened to determine if they are in a high-risk group (see the South Carolina high-risk screening program in Appendix A); and
- Require that all women and infants, especially those at high risk, be guaranteed entry into a system of regionalized, risk-appropriate, obstetrical and pediatric care.

What Are States Doing to Prevent Low Birthweight?

Most states now cover pregnant women with family incomes up to 100 percent of the federal poverty level under their Medicaid programs and all states must do so by July 1, 1990. A few states have adopted the maximum eligibility limit of 185 percent of the FPL (see the Table).

In addition, many states are initiating innovative programs to reduce their rates of LBW and infant mortality. Appendix A contains detailed information about activities in eight states. Other state examples appear elsewhere in the text. Several other state efforts are mentioned here to provide additional examples of the variety of approaches around the country. The list is not intended to be exhaustive or to include all states that have adopted the different approaches.

- Southern states joined forces in 1984 to address their high rates of LBW and infant mortality. Governors, legislators, and health and community leaders worked together to identify their common problems and barriers to prenatal care and to develop recommendations to overcome them. *The Final Report of the Southern Regional Task Force on Infant Mortality*, issued in November 1985 (see the Annotated Bibliography), lists 31 recommendations for state action and 15 for federal

action. Since then, the Southern Regional Project on Infant Mortality, which grew out of the task force effort, has assisted southern states in implementing task force recommendations.

- North Carolina is considered a leader in pursuing federal options to expand prenatal care services. The state's efforts, dubbed the "Baby Love" initiative, are intended to provide early, continuous, and comprehensive prenatal care to women in poverty. In addition to expanding Medicaid eligibility to 100 percent of the FPL for pregnant women (and children through age 2), North Carolina adopted the presumptive eligibility option; eliminated the assets test for applicants; and established a case management system through staff positions called Maternity Care Coordinators. The coordinators provide outreach, recruitment of clients, needs assessment, service planning, referral, education, and follow-up for clients. The state tested the presumptive eligibility option with a pilot program and concluded that the option is a major component of the plan to increase Medicaid enrollment.

- Mississippi is tackling its teen birth rate, the highest in the nation in 1985 (with 20.8 percent of all state births to teens, compared with the national average of 12.7 percent).[62] That year, 27.9 percent of all LBW babies in Mississippi were born to teens. The Department of Health and the Governor's Office initiated a pilot program in public junior high schools in two counties, called the Public Health School Nurse Intervention Program. Although no formal evaluation was done, initial results showed that while 56 teen pregnancies occurred in the pilot schools the year before, only 12 pregnancies occurred during the first year of the project. The reduction in pregnancies was achieved even though fewer teens used family planning services, leading program officials to believe that fewer teens were sexually active. The legislature expanded the program to 15 school districts in 1987 and extended the program in 1988.

  The Public Health School Nurse Intervention Program stresses overall teen health, conducts health screenings, provides counseling, conducts classroom presentations, including reproductive health education, and refers interested teens to family planning services outside the school. The program may not dispense birth control pills, may not mention abortion as an option, and must teach abstinence as the primary method of birth control. Parents are provided two opportunities to consent to or reject services for their child.

  In addition, Mississippi expanded Medicaid eligibility to 185 percent of the FPL for pregnant women, freeing up state resources to expand case management and risk management services for pregnant women.

- Maine encourages pregnant women to enroll early in prenatal care through an aggressive public education campaign. The legislature funded television advertisements promoting early prenatal care, which are shown during daytime soap operas and evening family-oriented programs. Promotional fliers are distributed in public utility bills and passed out at grocery stores. The state boasts a 90 percent success rate for enrolling pregnant women in prenatal care during the first trimester, the highest in the nation. In addition, Maine does prevention outreach to teenage boys concerning pregnancies and emphasizes that they will be held responsible for supporting their offspring.

- Tennessee expanded its WIC program by using rebates on infant formula purchased at retail stores with WIC vouchers. The rebates are paid to the state WIC agency by the formula companies under a contract between the agency and the manufacturer. Formula costs make up about 30 percent of the total WIC budget nationwide and at least nine other states have followed Tennessee's lead.[63] For example, Texas uses a competitive bidding system to purchase formula through its WIC program and has expanded services with the savings.

- Alaska's Senate Advisory Council published a report in March 1988, *Prenatal Care in Alaska: More Costs Less*, which uses state-specific data to identify Alaska's problems. One significant problem identified in the study is that Alaskan natives have the highest rate of Fetal Alcohol Syndrome (FAS) of any population studied in the world. Alcohol abuse is one of the principal risk factors for LBW identified by the Institute of Medicine. The legislature is expected to use the report to address the problem areas identified by the study.

How Are States Paying for Expanded Prenatal Care?

Funding is a major issue facing states wanting to expand prenatal care programs. For states that already finance maternity care for low-income women who are not eligible for Medicaid, the new opportunity to shift those women to Medicaid will save states money immediately, because the federal government pays at least half the cost.

For other states, expanding Medicaid may be a costly undertaking. Although prenatal care is cost-effective, paying for such care to thousands of newly eligible persons is expensive, especially in the beginning. As mentioned earlier, the Office of Technology Assessment concludes that the initial investment pays off over time in reduced costs for medical care, support services, and institutional care. State governments often pay at least a portion of that care through various programs. For example, most states help finance hospital costs for uninsured pregnant women and newborns. If those women receive adequate prenatal care, the total health care costs will be less.

The majority of states that recently expanded Medicaid for pregnant women appropriated new general funds to do so. A few states shifted resources or tapped new funding sources, including the following:

- Massachusetts spent $20 million in FY 1987 for its Healthy Start Program (see Appendix A). The program's FY 1989 budget will be dramatically less, between $2.5 and $3 million, due to two major changes: 1) expansion of Medicaid to 185 percent of the federal poverty level, which will cover about 80 percent of the program's clients; and 2) a shift of the program's hospital costs for the remaining clients to the state's uncompensated hospital care pool, which is not funded by state revenues.

- Indiana, Minnesota, and Utah earmarked increased cigarette taxes to expand their Medicaid coverage.

- Florida used its Public Medical Assistance Trust Fund, financed by a 1.5 percent hospital tax, to expand Medicaid. The legislature also added a $25 surcharge to commemorative marriage licenses to help fund the state's Improved Pregnancy Outcome Program (see Appendix A).

- A Colorado proposal that failed in 1988 would have used a portion of existing state appropriations for uninsured persons as a state match to expand Medicaid eligibility. The bill sponsor argued that the pregnant women and young children covered under the proposal make up a substantial share of the costs of the medically indigent program.

Conclusion

The overwhelming weight of the evidence is that prenatal care reduces low birthweight. This finding is strong enough to support a broad, national commitment to ensuring that all pregnant women in the United States, especially those at medical or socioeconomic risk, receive high-quality prenatal care.

—Institute of Medicine[41]

The health of our nation's children is a growing concern. Children born healthy have a better chance of staying healthy with fewer resources. Advocates are working hard to bring the issue to the attention of lawmakers. Federal attention to the issue has increased the public's awareness. Medicaid reforms have provided states with financial assistance to improve and expand public prenatal and child health programs. Most states are taking advantage of the federal reforms, and cost-effective initiatives in several states have provided opportunities for other states to learn what works best. All of these efforts and opportunities will enable states to improve birth outcomes for their youngest citizens.

Appendix A

This Appendix profiles eight state programs, studies, or plans to reduce the incidence of low birthweight and infant mortality by making prenatal care more widely available to low-income women.

The following states and emphases are profiled:

- California—Developing a Successful Strategy;
- Massachusetts—Providing Statewide Maternity Care;
- Michigan—Establishing Prenatal Care As a Right;
- South Carolina—Focusing on High-Risk Mothers and Infants;
- Florida—Preventing Preterm Labor Through Education;
- Kansas—Allocating Limited Resources;
- Utah—Selling a Program; and
- New Jersey—Learning From Other States and Cities.

States were selected to provide examples that include successful programs, different approaches, geographic diversity, differences in availability of resources, cost-effectiveness, and planning a program. The state profiles are not necessarily intended to represent the most comprehensive or successful state efforts. Although the state profiles are presented in a similar format, the differences in approach and experience necessitate some differences in presentation.

Each state profile shows percentages of low birthweight and rates of infant mortality, based on information from the Children's Defense Fund. A few state administrators have noted a discrepancy in the data listed and their own state data for 1985, which stems largely from subsequent revisions to preliminary data reported by states. Some differences also stem from reporting for nonwhites and blacks. For example, in some cases, the rate shown for blacks is actually the rate for nonwhites; in some cases, states have recently changed their definitions for racial or ethnic groups. Because the Children's Defense Fund data are the most comprehensive data available, they are used unchanged here and in the Table in the text. State rankings reflect each state's national standing, with 1st being the lowest rate in the country. Because a description of various prenatal care services appears on pages 13-14, the Appendix does not contain details about services provided by states, unless there is something unique about them. The information was gathered through both written and oral communication with state program personnel. State contacts also sent published reports and copies of agency communications about the programs, which served as references.

There are some common elements among successful state initiatives that are worth mentioning. Many of the programs resulted from work done by coalitions of interested persons, including legislators, consumers, health care providers, and advocates from organizations, such as the March of Dimes, the Children's Defense Fund, and Healthy Mothers/Healthy Babies groups. In a number of states, legislative sponsors or program advocates took legislators on a tour of a neonatal intensive care unit in a local hospital to see firsthand what low birthweight means. In some cases where clients were not using available resources, legislators or program administrators developed strategies to reach out to clients, such as implementing community education programs or sponsoring an open house at local clinics.

California: Developing a Successful Strategy

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
9.2	20th	16.3	9th

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.3%	14th	11.9%	15th

(Note: The California Family Health Division reports the following data for 1985 infant mortality rates: white, 9.0; and black, 16.2.)

Program: *Obstetrical Access Pilot Project (OB Access).* California sponsored a pilot project in 13 counties from July 1, 1979 to June 30, 1982, to improve access to maternity care in underserved areas and to improve pregnancy outcomes through enhanced prenatal care.

Clients: The OB Access program registered 6,774 women, approximately half of whom were Medi-Cal beneficiaries (California's Medicaid program) and half of whom were low-income mothers assisted through federal Title V funds (the forerunner of the MCH block grant). The project served women in 13 counties, targeting rural areas and minority populations, including black, Hispanic, Native American, and Southeast Asian.

Services: The OB Access package provided enhanced prenatal care services to participating women, including an average of 11 prenatal visits, outreach, health education, nutrition assessment and counseling, and psychosocial services.

Results: The OB Access program and study serve as a model for other states. Some of the findings from a report, *Final Evaluation of the Obstetrical Access Pilot Project: July 1979 - June 1982*, are as follows:

- The early provision of nutritional, birth education, and psychosocial services had a measurable and positive impact on birth outcome.
- The low birthweight rate for OB Access women was 4.7 percent, 33 percent less than for a matched group of Medi-Cal mothers (7 percent).
- Each $1 spent on the project saved between $1.70 and $2.60 in short-term costs (through the first year of life).
- Eighty-seven percent of participants started prenatal care in their first or second trimester.
- Eighty-four percent of registrants completed care.

Funding: A federal grant from the Health Care Financing Administration helped support the project. The cost of providing enhanced care was 5 percent higher than the average cost of care under the Medi-Cal program, but no new Medicaid funds were appropriated. To take advantage of other existing resources, OB Access coordinated with other programs, such as WIC, genetic screening, family planning, and public health services.

Other Programs: The California Legislature established two programs intended to expand access to prenatal care statewide, which are the Community-Based Perinatal Services Program and the Comprehensive Perinatal Services Program.

The Community-Based Perinatal Services Program (CPSP). Created by AB 2821 (Chapter 1112) in 1982, CPSP provides comprehensive prenatal care services on a sliding-scale basis to uninsured low-income pregnant women and their babies. The service package includes medical care, nutrition counseling and referral, parenting and other health education classes, and psychosocial counseling and referral. In FY 1986-87, 69 agencies were under contract to provide CPSP services, but 14 of California's 58 counties had no state-funded prenatal care clinics. The FY 1987-88 budget of $13.3 million included $8.8 million in federal and $4.5 million in state funds. According to the Southern California Child Health Network, the program served 30,197 women in FY 1986-87, but an estimated 35,000 indigent pregnant women who meet eligibility requirements were not served due to a shortage of funds.

The Comprehensive Perinatal Services Program (CPS). Often called the "Margolin Program" after its legislative sponsor, CPS was established by AB 3021 (Chapter 1404) in 1984, but became operational in late 1987. The program enhances maternity care for pregnant Medi-Cal women and provides similar services to those in the CPSP program. Approximately 105,000 pregnant women are eligible for the program annually.

Problems: Although California is considered a national leader in its efforts to reduce infant mortality and LBW rates, it has its share of problems. The Southern California Child Health Network reports the following data:

- Many Medi-Cal clients and uninsured women lack access to care. An estimated 36,000 babies are born each year without the benefits of basic health care;
- The number of births to high-risk women (mothers age 17 or younger or age 35 or older and others who receive late or no prenatal care) increased 14 percent between 1984 and 1986;
- The number of babies reported with drug withdrawal at birth increased 183 percent in Los Angeles County between 1984 and 1987; and
- An estimated 4,400 newborns are affected annually by alcohol abuse.

Needs: The Southern California Child Health Network reports three priorities for action:

- Make services available in every county;
- Make the price of maternity care affordable; and
- Get more pregnant women into early and continuing care.

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Massachusetts: Providing Statewide Maternity Care

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
8.2	3rd	20.8	27th

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.4%	17th	10.3%	4th

(Note: The Massachusetts Department of Public Health reports the following data for 1985 infant mortality rates: white, 8.6; and black, 24.7. The department reports the following percentages for LBW births in 1985: white, 5.1 percent; and black, 10.8 percent.)

In 1982 the state's infant mortality rate jumped to 10.1 deaths per 1,000 live births, from 9.6 the year before. As a result, the Department of Public Health convened a statewide Task Force on the Prevention of Low Birthweight and Infant Mortality. Among the task force's findings was that a woman with no prenatal care has a five times greater chance of having a low birthweight baby and a 10 times greater chance of having her baby die within the first month of life than a mother with adequate care. A key recommendation from the task force was that "maternity and infant care must be affordable to all."

Program: *Healthy Start.* The Healthy Start Program, initiated in December 1985, provides early and continuous prenatal care to low-income pregnant women in Massachusetts.

Clients: Healthy Start serves uninsured pregnant women who have incomes at or below 200 percent of the federal poverty level (FPL) and who are not eligible for Medicaid. Approximately 5,800 women per year were eligible for Healthy Start before the state expanded Medicaid eligibility to 185 percent of the FPL, effective July 1, 1988. About 80 percent of the program's clients will meet the new Medicaid eligibility standards, and the Healthy Start population will decrease to an estimated 1,200 women per year. The Healthy Start program will work with the Department of Public Welfare to enroll appropriate women into Medicaid. In addition, the program will continue to assist pregnant women to access pregnancy-related services through outreach, information and referral, and followup.

To date, Healthy Start has enrolled about 16,000 women, including major high-risk groups. Of the total, 26 percent of clients were 19 years of age or younger (compared with a 9 percent overall state rate); 57 percent were unmarried (compared with a state total of 18 percent); and 16 percent were black (compared with 6 percent of all 1985 births in the state).

The program reaches out to ethnic communities by printing brochures in seven languages.

Services: Healthy Start services, provided through private physicians, certified nurse midwives, community health centers, hospital prenatal care programs, and birthing centers, include the following:

- Prenatal care visits;
- Laboratory and pharmacy services;
- Home visits for high-risk pregnancies;
- Diagnostic and consultation services;
- Inpatient hospital costs for the mother and infant, until July 1, 1987, when those costs were shifted to the state's uncompensated hospital care pool;
- Physician examination for the newborn;
- One complete postpartum visit for the mother;
- One well-baby visit for the infant; and
- Other specialty services based on medical review.

As of July 1, 1988, the scope of services includes all medically necessary care to maintain health during the course of the pregnancy and delivery, and all medically necessary postpartum obstetric and gynecological care.

Regional coordinators link clients to other services, such as WIC, Medicaid, teen services, social services, substance abuse programs, and battered women's shelters.

Problems: Funds initially were budgeted for nutrition counseling and social services for high-risk clients, but the money was redirected to cover basic program components after such a large number of women enrolled.

Funding: The Massachusetts General Court appropriated $6 million in December 1985 for the first seven months of the program. In 1986, the average cost per client was $3,300. This included $1,100 for prenatal and postpartum care, and $2,200 for hospital care for both mother and infant.

Recent changes have shifted the program's funding sources. Although the FY 1987 program budget was $20 million, it will drop to between $2.5 and $3 million for FY 1989 and the average cost per client is estimated to be about $1,695 due to the following changes:

- On July 1, 1987, the program's hospital costs were shifted to the state's uncompensated hospital care pool, which is funded through the state's all-payer rate-setting program by increasing hospitals' charges for all payers; and

- On July 1, 1988, Medicaid eligibility for pregnant women was increased from 100 to 185 percent of the FPL, and about 80 percent of the clients served under Healthy Start are now eligible for Medicaid, which means they are covered by the separate Medicaid program, under which the federal government pays for 50 percent of their medical costs.

Results: A recent preliminary evaluation of Massachusetts women delivering babies in the second half of 1986 lists several findings, including the following:

- Healthy Start reached an estimated 85 percent of the potentially eligible women. Those enrolled included a disproportionate number of women from groups historically at risk for higher infant mortality: minorities, teens, unmarried women, and women without a high school diploma.

- Healthy Start participants did not register for prenatal care earlier than uninsured women. However, program participants did receive continuous and comprehensive care once they initiated care, and this improvement was especially dramatic for black women.

- Healthy Start clients had a lower rate of low birthweight infants than women without insurance or with Medicaid. Among minorities, teens, unmarried women, and women without a high school diploma, Healthy Start had a lower incidence of low birthweight infants than women with private insurance (see the chart).

- Healthy Start clients had a lower incidence of premature births than women without insurance or with Medicaid. Among groups considered at risk—minorities, teens, unmarried women, and women without a high school diploma—Healthy Start clients had the lowest rate of prematurity compared to most other payer sources, including private insurance.

Percent Incidence of LBW Infants by Payer Source and Subgroup*

Prenatal Care Payer	White	Black	Hispanic	Asian	Teen	Less Than High School Graduate	Un-Married	Total
Private	4.2	9.1	6.2	5.4	6.1	6.9	8.3	4.6
Medicaid	7.6	12.3	8.5	9.5	9.0	8.6	9.3	8.7
Healthy Start	4.8	6.1	4.4	2.4	5.4	5.9	5.2	4.8
Uninsured	5.2	17.1	12.3	2.2	10.9	10.6	11.9	6.2
Other Gov't.	3.2	11.0	6.9	1.8	3.3	8.8	8.0	4.4
Unknown	8.2	20.7	14.0	0.0	18.9	20.7	14.3	6.8
State Total	4.6	10.6	7.7	5.5	7.7	8.0	8.9	5.3
Subgroup N	32,150	2,554	2,255	1,059	3,078	5,947	7,886	40,260

* The race groups are mutually exclusive; the other subgroups, however, are overlapping, e.g., teens includes all women under 20 years of age, of any race or marital status.

Source: Preliminary Health Start Evaluation Report, March 15, 1988, Table 6. The report used Massachusetts Birth Certificates July 1 - December 31, 1986.

Future: The Healthy Start program is changing with the state's expansion of Medicaid and with plans to mandate statewide health insurance coverage for all residents by 1992. Healthy Start was continued under the act that mandates statewide insurance coverage (Chapter 23 of the Acts of 1988), and will continue to serve low-income women who do not qualify for Medicaid and have no other insurance.

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Michigan: Establishing Prenatal Care as a Right

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
9.3	28th	22.4	31st

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.4%	16th	13.6%	42nd

Program:

Basic Health Service. Michigan's FY 1987 appropriations act designated prenatal and postpartum care as a "basic health service," meaning that such care is guaranteed to all women in need.

Clients:

The Michigan Public Health Code states that "basic health services" shall be made available and accessible to all residents, regardless of race, age, sex, marital status, or inability to pay. State appropriations pay for prenatal care for pregnant women with incomes up to 185 percent of poverty who are not eligible for Medicaid, when no other source of payments exist. Women in need of assistance who have higher incomes are referred to appropriate providers.

Services:

The following services are provided by or through local health departments and are guaranteed for all eligible women in Michigan:

- Medical services that follow the schedule established by the American College of Obstetricians and Gynecologists;
- Routine laboratory services;
- Selected other laboratory and diagnostic services;
- Selected prescription medications;
- Vitamins;
- Education of expectant parents;
- Psychosocial screening, but not provision of social services;
- Nutrition screening for risk, with referral to the WIC program or other resources as indicated;
- Labor and delivery services; and
- One postpartum visit.

Providers:

Local public health departments contract with the state to provide the service package and then with private physicians to render about 80 percent of the medical care. The reimbursement rate per client is approximately twice that offered by Medicaid in 1986 ($485 vs. $250), but includes $100 for nonmedical services and $35 for community education and outreach.

Problems:

Benefits do not include hospital expenses or care for the newborn, and outreach efforts are limited.

Other Programs:

Maternal Support Services. As a component of extending Medicaid coverage to pregnant women up to 100 percent of the federal poverty level, Michigan implemented a comprehensive prenatal care program. Support services to Medicaid women include childbirth and parenting education, psychosocial and nutritional assessments and counseling, transportation, and child care services. The legislature appropriated money to increase Medicaid fees for delivery by 30 percent and prenatal care by 20 percent, beginning November 1, 1987. As of October 1, 1988, Michigan expanded Medicaid eligibility for pregnant women with incomes up to 185 percent of the FPL.

Paraprofessional Outreach. The legislature appropriated $1.6 million to begin an outreach program in April 1986 in 10 counties with high incidences of infant mortality and low birthweight. The program uses Volunteers in Service to America (VISTA) and former welfare recipients to search communities, identify low-income pregnant women, and help them obtain information and access to services.

Teen Pregnancy Reduction. An estimated 17,000 Michigan teenagers gave birth in 1986, the majority of whom did not receive early prenatal care. On October 1, 1987, the Department of Health launched the Teen Pregnancy Reduction Initiative, with $570,000 in state general fund money. The program provides primary prevention and education for teens identified "at risk" of getting pregnant.

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South Carolina: Focusing on High-Risk Mothers and Infants

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
9.6	36th	21.8	30th

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.9%	34th	13.0%	36th

Programs:

The High Risk Perinatal Program (HRPP). HRPP serves low-income women and infants (up to 150 percent of poverty) who are not eligible for Medicaid. The program is intended to reduce complications of pregnancy, infant deaths, and birth defects. As of January 1986, all 46 counties participate in HRPP and provide services to identify early high-risk individuals, manage medical and support care, and aggressively treat both high-risk pregnant women and high-risk infants.

The Medicaid High Risk Channeling Project (HRCP). Based on the High Risk Perinatal Program, HRCP extends enhanced prenatal and postpartum care to high-risk, Medicaid-eligible pregnant women and newborn infants. The state has a Medicaid "freedom of choice" waiver to allow the program to approve providers for women deemed high risk and to allow the state to provide additional care to a subgroup of pregnant Medicaid clients. Providers for care to high-risk women must be board eligible/board certified obstetricians who participate in the Medicaid program.

Goals:

The goals of both programs are as follows:

- To increase access to appropriate care;
- To reduce the perinatal mortality rate;
- To diminish the frequency of handicaps associated with low birthweight and prematurity; and
- To ensure the cost-effectiveness of care.

Clients:

Both the HRPP and the HRCP programs concentrate enhanced resources on low-income women and infants at high risk of complications. Eligible pregnant women are screened and then "channeled" into an appropriate level of care. Clients determined to be at low risk for prenatal and postpartum care are provided with standard prenatal care services.

Screening: Pregnant women are screened through local programs for about 20 medical risk factors, including prior problem pregnancies and current conditions that may cause complications, such as hypertension, sickle cell anemia, or diabetes. Newborns are screened for low birthweight and a number of other medical complications. Initial risk assessments are reviewed by the state Department of Health and Environmental Control, where clients are confirmed "high risk" or are recommended for standard prenatal care.

During the first 15 months of the Medicaid HRCP program, about one in five women and one in seven infants had at least one risk factor indicated on the initial screening form. Two-thirds of the risk-flagged women and just over half of the flagged infants were confirmed by the department as eligible for the High-Risk Channeling Project. Of all Medicaid pregnant women and infants screened through mid-1988, approximately 15.2 percent of women and about 6.5 percent of infants have been judged to require high-risk channeling and follow-up.

Services: All Medicaid-eligible women and infants determined to be "at risk" must participate in the channeling project, unless exempted for good cause, such as lacking transportation, or having employment conflicts, although attempts are made to accommodate clients' circumstances. The participation requirement means that high-risk women must receive care from an approved obstetrician. Enhanced services include the following:

- Social work evaluation and follow-up;
- Nutritional assessment and follow-up;
- Health education;
- Unrestricted transportation to and from perinatal services;
- Case management to ensure that risk-appropriate care is rendered and received by Medicaid high-risk patients and appointments are scheduled;
- Delivery in a Level II or Level III hospital, which are better equipped and staffed to handle difficult cases than Level I community hospitals; and
- Nursing care management follow-up (monitoring of child health and use of family planning services for one year after delivery).

Results: An evaluation of the Medicaid High Risk Channeling Project published in October 1987 by the University of South Carolina School of Public Health reports the following:

- During the first three years of the High Risk Perinatal Program, the perinatal death rate for program participants was approximately half that for nonparticipants with similar risk factors.
- High Risk Channeling Project clients were much more likely to deliver their babies in Level II or III hospitals than other Medicaid-eligible women, and the difference was greatest for HRCP clients residing in counties having only a Level I hospital.
- Counties with low initial HRCP participation had, as a group, a higher rate of newborn problems, as measured by comparing diagnosis-related groups (DRGs).
- In October 1987, total savings from process and outcome effects of the HRCP were estimated to be $130,000 per month. Calculated savings included $8,000 from fewer transfers of infants to higher level hospitals, which includes calculating the extra cost of delivering normal babies of women channeled to higher level hospitals; $95,000 from lower hospital costs due to better outcomes for newborns; and $27,000 from physician charges saved due to better newborn results.

Other Programs: *The South Carolina Adolescent Reproductive Risk Reduction Project (3R Project).* Supported by a federal grant, the 3R Project provides reproductive health education for seventh and eighth graders in rural counties determined to be at high risk for teen pregnancy. Although controlled studies have not been done, teen pregnancy rates in counties with 3R interaction have dropped (24 percent in Marlboro, 22 percent in Darlington, and 17 percent in Marion), while teen pregnancy rates in nonparticipating counties have fluctuated or risen.

Resource Mothers. The Resource Mothers project attempts to prevent the adverse effects of adolescent pregnancy by matching pregnant teens (girls aged 17 and younger) with women from their own communities. These volunteers help supplement and reinforce prenatal services and offer informal support to the young women, encouraging them to reduce risky health behaviors, such as drinking and smoking, and to return to school. In addition to prenatal support, the program offers support after the baby is born, with parenting classes that provide information on the signs and symptoms of illness in babies and basic child care techniques. Project staff hope to reduce infant mortality, correct parenting deficits, and increase the time between pregnancies for these adolescents. The project is funded through an MCH block grant appropriation as a Special Project of Regional and National Significance (SPRANS).

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Florida: Preventing Preterm Labor Through Education

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
9.2	23rd	17.8	16th

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
6.0%	42nd	12.4%	27th

In 1982, Florida ranked 42nd among states in infant mortality, and about 40 percent of births were to women without medical insurance. About half of the uninsured mothers received no prenatal care or no more than two prenatal visits. That same year, a federally funded pilot project operating in five Florida counties was ending. The counties participating in the Improved Pregnancy Outcome (IPO) project experienced a 33 percent reduction in the infant mortality rate between 1975 and 1978. The rate for project clients dropped to 5.62 deaths per 1,000 live births.

The success of the pilot project, recommendations from the state's Maternal and Infant Care Task Force, and support from a key legislator, influential physicians, and the governor helped win legislative support to expand the program statewide. The Florida Healthy Mothers Healthy Babies Coalition, organized by the March of Dimes in cooperation with the University of Florida and the Department of Health, helped secure increased funding for the program in subsequent years.

Programs:

Improved Pregnancy Outcome Program (IPO). This statewide program, based on the successful IPO pilot project, provides prenatal care to low-income women through local health departments.

Preterm Birth Prevention Project. The project, part of the state's IPO Program, provides enhanced prenatal care and patient education to clients who are designated high risk, approximately 20 percent of the total. The project, begun statewide in 1984, is based on the Preterm Labor Staff Development Model used by Dr. Robert Creasy and M.A. Herron in San Francisco. This model is based on the work of Dr. Emile Papiernik-Berkhauer in Paris, who reportedly reduced the number of preterm births from 10 percent to 3 percent over a 10-year period.

The "Creasy method" trains service providers and patients to identify the risks and early warning signs of preterm labor in time to administer labor-inhibiting drugs. In the first year of the project, over 1,500 Florida physicians, nurses, nutritionists, and social workers were trained in the Creasy Preterm Birth Prevention Protocol. Trained staff, in turn, presented local seminars to various service providers.

The project's primary goal is to cut the rate of low birthweight babies by half between 1984 and 1989. Project supporters estimated that a $10 million investment could save the state $22 million in intensive care, long-term institutional care, and special education costs.

Eligibility: The IPO Program covers uninsured pregnant Florida residents with incomes below 100 percent of the federal poverty level, who are not eligible for Medicaid. Women believed to be eligible for Medicaid are enrolled in the project until the Medicaid eligibility process is completed. The income threshold may vary by county, depending on local resources. All IPO Program patients are screened for high risks for preterm labor and for other medical complications and appropriate clients are given additional services through the Preterm Birth Prevention Project.

Services: IPO Program clients receive the following services:

- Standard medical care, including seven to eight prenatal visits and at least one postpartum visit;
- Health education, including lessons in hygiene, infant care, breast feeding, and childbirth;
- Nutrition education, counseling, and treatment through the WIC program;
- Medical risk assessment, including use of the Creasy method to assess risk of preterm labor;
- Patient education to identify the signs of preterm labor;
- Coverage for physician or nurse midwife labor and delivery charges in some locations, but not hospital charges; and
- Family planning counseling to discourage clients from becoming pregnant again for two years.

Preterm Birth Prevention Project clients receive additional services, as follows:

- Care from the same clinician throughout;
- Weekly visits for gentle cervical checks between 24 and 36 weeks of pregnancy;
- Intensive nutrition counseling and follow-up; and
- One prenatal and one postpartum home visit.

Results: While statewide objectives sought a 10 percent reduction in the low birthweight rate for IPO Program patients in 1983-84, the program achieved an 11.5 percent reduction.

Although a formal program evaluation is not yet complete, preliminary results show lower rates of LBW and very low birthweight for IPO Program patients who received preterm labor education, than for those whose records showed that they received no such education, as follows:

	Percentage of Low Birthweight	Percentage of Very Low Birthweight
IPO patients who had preterm labor education	7.6%	0.8%
IPO patients who had no preterm labor education	11.2%	1.6%

To evaluate the effects of preterm labor education on birthweight outcome, records were examined for 7,967 IPO patients. Records reflected that 6,296 patients had received education and 1,671 had not. The patient groups were controlled for age, gestation at first visit, history of previous

preterm births, address, and Creasy score. The evaluation did not control for single-parent status or smoking.

Note: A recent national study of the "Creasy method," sponsored by the March of Dimes between 1983 and 1987, showed no overall significant reduction in preterm delivery or low birthweight rates. Charles Mahan, M.D., who developed Florida's Preterm Labor Prevention Program, reports that it is not possible to determine whether the preterm labor protocol is responsible for Florida's improved results. He says that the protocol has served as a focal point for the program and motivated health professionals to raise the level of care that they provide.

Legislation: In 1982, the legislature appropriated $1.8 million in general funds to expand the IPO Project statewide. The program was established in statute in 1986 with passage of House Bill 1313 (Chapter 86-220).

In 1987, the legislature passed HB 1384 (Chapter 87-92), which did the following: extended Medicaid eligibility to pregnant women with incomes up to 100 percent of the federal poverty level; implemented presumptive eligibility for pregnant Medicaid-eligible women; prohibited a resource test for pregnant women applying for Medicaid, unless they are applying for other public assistance as well; and increased Medicaid reimbursement for physicians providing total obstetrical services (prenatal care, delivery, and postpartum care). Fees were raised to at least $800 per delivery for low-risk patients and $1,200 for high-risk patients. As part of this "OBRA-86 package," the legislature imposed certificate of need (CON) regulation on neonatal intensive care units, but deregulated obstetrical care services from CON review.

Funding: Funding for the Medicaid expansion comes from Florida's 1.5 percent assessment on hospital revenues passed by the legislature in 1984. In 1987, the legislature approved a $25 charge for each commemorative marriage license issued in the state to help fund the IPO Program (Section 382.025, Florida Statutes).

Problems: Florida's program has one of the worst records for starting women in prenatal care early. First trimester entry has increased from about 19 percent to 27.6 percent, and approximately 24 percent of clients start care in their third trimester.

Future Plans: In April 1988, Governor Bob Martinez announced the "Ounce of Prevention" program to combine public and private resources for prevention programs for children, which may include prenatal care services and teen pregnancy prevention. The legislature appropriated $300,000 toward the program, and private individuals and foundations contributed another $675,000 by mid-1988. Money is to be distributed to private nonprofit organizations to provide innovative prevention programs.

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Kansas: Allocating Limited Resources

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
9.0	15th	14.4	4th

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.5%	21st	12.1%	21st

The Kansas Department of Health and Environment uses the Kansas Prenatal Care Index to help identify priority areas for state assistance through its Maternal and Infant Program. The index, which is a modified form of the Kessner index (see the Glossary under "adequacy of care"), categorizes prenatal care into three levels based on when care began and whether the appropriate number of visits were made relative to the stage of pregnancy. The three levels are "adequate," "marginal," and "inadequate." Although the index is a method for measuring quantity of prenatal care, it does not measure quality.

In 1985, 5.2 percent of Kansas women who received adequate prenatal care gave birth to LBW infants, while 10.8 percent of women receiving inadequate care had LBW babies.

In addition to the index, the department uses low birthweight and infant mortality percentages by county of residence to identify priority areas for funding. The department constructs maps showing data for all 105 counties. According to the department, 5,748 pregnant women did not receive adequate prenatal care in 1986.

Maternal and Infant Program projects had been established in 10 counties by 1984. With a $500,000 appropriation from the legislature in 1986 to supplement federal funds, the number of sites was expanded to 15, with outreach services to a total of 27 counties. Two more sites were added in FY 1988 and another two in FY 1989.

Program:

Maternal and Infant (M&I) Program. The M&I Program provides comprehensive prenatal care to adolescents and other high-risk mothers and their infants in selected areas of the state. Eligibility is not determined by income, except for physician reimbursement. In those cases, priority is given to women whose family incomes are between 100 and 185 percent of poverty. Participants may pay for selected services on a sliding-scale basis.

Services:

The M&I Program provides the following services:

- Public awareness and outreach services;
- Use of a culturally oriented bilingual health care team;
- Identification and evaluation of client risks and needs and individualized care based on need;
- Initial and ongoing assessment and monitoring of health status and health care compliance;
- Access to nutritional assessment and services;
- Access to nursing and social work assessments and counseling;
- Availability of vitamins, medicines, and laboratory tests;
- Provision of or access to health education, including prenatal and childbirth classes, stress management, and instruction about behavorial risks;
- Access to transportation and child care services; and
- Access to postpartum care, genetic counseling, and family planning services.

Funding:

The M&I Program is supported with federal Maternal and Child Health block grant funds, state general funds, and a local match of 43 percent for each project site.

Results: Significant decreases in the incidence of infant mortality and low birthweight have been documented in the M&I Program population when compared to similar at-risk populations not receiving such services. During calendar years 1986 and 1987, the infant mortality rate for infants born to mothers who received M&I Program services was approximately half that of a comparable statewide at-risk population. The incidence of low birthweight for the M&I Program population, a high-risk group, was 8.0 percent, compared to the overall state LBW incidence of 6.1 percent.

Problems: The M&I Program lacks the resources to enable it to function statewide, and the program does not pay for hospital costs or pediatric care.

Other Programs: Three Medicaid initiatives in Kansas are intended to increase prenatal care participation by low-income women and reduce the incidence of poor pregnancy outcomes for Medicaid clients. In 1985, the LBW rate for Medicaid clients who received inadequate prenatal care was more than three times the rate for those who received adequate care, as shown by the following data:

- For those with zero to three prenatal visits, 23 percent had low birthweight infants;
- For those with four to six prenatal visits, 17 percent gave birth to LBW infants; and
- For those with 10 or more prenatal visits, 7 percent had LBW babies.

The following initiatives are intended to improve pregnancy outcomes: expansion of Medicaid eligibility to 100 percent of the federal poverty level for pregnant women; implementation of the Prenatal Health Promotion and Risk Reduction Program; and creation of the Prenatal Express initiative. The latter two are described briefly here.

Prenatal Health Promotion and Risk Reduction Program. This program provides case management, client education, and coordination with other support services for pregnant Medicaid clients. The program is a cooperative endeavor among the Department of Health and Environment (KDHE), the Department of Social and Rehabilitative Services (SRS), and local health departments. The SRS reimburses local health departments for this program, which includes outreach, referral to appropriate care based on an assessment of risks and needs, case management, patient education, client follow-up to document pregnancy outcome, and referral of clients for a newborn/postpartum home visit.

Prenatal Express. The Prenatal Express initiative expedites the Medicaid application process for eligible pregnant women. The KDHE and the SRS developed a one-page Medicaid eligibility fact sheet and are providing training and technical assistance to local health departments to help all potentially eligible pregnant women apply. No resource test is needed and Prenatal Express applications are given priority status for the approval process.

Program Contact:
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Bureau of Maternal and Child Health
Kansas Department of Health and Environment
900 S.W. Jackson
Topeka, KS 66612-1290
(913) 296-1307

Legislative Contact:
Legislative Research Department
(913) 296-3181

Utah: Selling a Program

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
9.7	37th	(not available)	

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.6%	27th	10.4%	5th

Several years ago, Utah led the nation as the state with the lowest infant mortality rate. Since then, at least 20 other states have surpassed Utah in improving their rates. Between 1983 and 1985, Utah's infant mortality rate jumped more than 10 percent, from 8.6 deaths per 1,000 live births, to 9.7 deaths.

The Utah Department of Health and the Healthy Mothers/Healthy Babies Coalition of Utah launched a successful campaign in 1987 to improve prenatal care services to low-income women. The campaign used 1985 birth certificate and Medicaid data compiled by Dr. Peter C. van Dyck, director of the Utah Family Health Services Division. Program advocates and legislative sponsors who had used national data to lobby lawmakers in previous years were more successful using Utah-specific data. The legislature appropriated $1.7 million in new money for prenatal care from an increase in the cigarette tax.

Data:

The Family Health Services Division prepared fact sheets for legislators, using results from Dr. van Dyck's study. Among the 1985 data presented were the following:

- Comparisons between all Utah women and Medicaid clients who delivered babies.

	All Utah Mothers	Medicaid Mothers
Fewer than six prenatal visits	6.5%	13.5%
Babies weighing less than 5.5 pounds	5.7%	12.4%
Babies weighing less than 3.5 pounds	0.8%	1.7%

- Comparisons between Medicaid mothers with 10 or more prenatal visits and those with fewer than 6 visits.

	10 or more visits	Fewer than 6 visits
Incidence of low birthweight babies	9%	18.4%
Rate of infant mortality (per 1,000 live births)	12.4	20.4

- Comparisons of costs for low birthweight babies.

  Medicaid babies weighing less than 3.5 pounds cost an average of $63,000, while normal weight babies averaged $2,700. While only 1.7 percent of all babies born to Medicaid mothers weighed less than 3.5 pounds, they consumed $2.7 million, or 24 percent of all Medicaid expenditures for initial hospital care for newborns.

- Projections of cost savings.

  In 1985, Utah's Medicaid program was billed nearly $11 million for pregnancy and birth care. Medicaid serves between 50 and 60 percent of the women who are below 100 percent of the poverty level in the state. The estimated cost of pregnancy and delivery care for all poor women is nearly $17 million. If all poor women could improve the outcomes of their pregnancy equal to that of other Utah women, $10 million could be saved. This could be accomplished by increasing the number of prenatal visits, thereby decreasing the incidence of very expensive low birthweight babies.

The cost benefit analysis for Utah shows that for every dollar spent for prenatal care for poor women, nearly three dollars could be saved in delivery and intensive care costs.

Program: *Baby Your Baby.* With the $1.7 million legislative appropriation, Utah created the "Baby Your Baby" program, expanding Medicaid eligibility and services to pregnant women with incomes up to 100 percent of the federal poverty level. Because the federal government pays for almost 74 percent of Utah's Medicaid costs, the $1.7 million state appropriation expanded to about $6.5 million total new program dollars. Utah also adopted the Medicaid presumptive eligibility option; enhanced prenatal services to include nutrition counseling, psychological counseling, childbirth and parenting education, community health nursing home visits, case coordination, and assessment for high risks; and increased reimbursement rates to Medicaid providers from $520 to $700 per case, or $800 for high-risk patients.

Outreach: The division launched a multimedia education campaign, including radio public service announcements, newspaper advertising and inserts, bus boards, seminars, information cards, posters, and program guides. The highlight of the outreach effort is a television campaign donated by KUTV Inc., over a two-year period. The broadcasts, estimated to cost over $2 million, include several half-hour documentaries. After the first half-hour program, which listed a hot-line number, 100 calls were received within an hour.

Future: State Medicaid program administrators would like to adopt the continuous eligibility option allowed under OBRA-86 and expand Medicaid to children up to age five, whose family incomes are up to 100 percent of the poverty level.

Program Contact:
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Salt Lake City, UT 84116-0640
(801) 538-6161

Legislative Contact:
Office of Legislative Research and General Counsel
(801) 538-1032

New Jersey: Learning from Other States and Cities

Profile:

1985 Infant Mortality Rate
(deaths per 1,000 live births)

White	State Rank	Black	State Rank
8.8	11th	18.8	18th

1985 Percent of LBW Births
(percent of total births)

White	State Rank	Black	State Rank
5.5%	22nd	12.2%	23rd

(Note: The New Jersey Department of Health, Maternal and Child Health Services, reports that the state's infant mortality rate for blacks in 1985 was 20.3. The figure shown is actually for nonwhites.)

In 1985, Governor Thomas Kean directed the Office of Policy and Planning to develop initiatives to address the state's most pressing health problems. The governor incorporated recommendations concerning low-income pregnant women and young children in his 1986 State of the State Message to the legislature. On May 4, 1987, the governor signed Assembly Bill 2733 (Chapter 115), creating the HealthStart Program and expanding Medicaid eligibility and services to pregnant women.

Planning: The New Jersey Department of Health reviewed programs around the country and published a 37-page report, *Review of Innovative State Maternal Health Programs in the United States.* The department studied seven statewide programs and four local projects to help New Jersey choose the most appropriate components in developing its own program.

The seven states studied were California, Florida, Maryland, Massachusetts, Michigan, New York, and Ohio. The department reviewed the programs' eligibility criteria, funding sources, reimbursement systems and rates, and care standards and services, including the range of services, whether services were required or permitted, the degree of coordination among services, and the specificity of requirements for services.

The department's report lists the following elements that were particularly useful in designing HealthStart:

- Successful strategies for writing meaningful service standards and pitfalls to avoid (California, Florida, Michigan, Ohio);
- Specific content of services within each service component, including assessment, care plan, interventions, risk screening, referral, and follow-up (California, Florida, Michigan, Ohio);
- Techniques for screening and prevention of preterm labor (Florida, New York);
- Models and strategies for case coordination (California, Maryland);
- Strategies for provider education and outreach (California, Florida, New York);
- Structures and strategies for encouraging community education and outreach (Florida, Michigan, New York, Ohio); and
- Successful strategies and pitfalls to avoid for provider applications and ongoing quality assurance, both monitoring quality and providing technical assistance (California, Florida, Michigan, New York, Ohio).

The study's focus on model outreach and case coordination programs included Baltimore's Best Babies Program, Boston's Healthy Baby Program, Hartford's Maternity and Infant Outreach Project, and Washington, D.C.'s Better Babies Program. The primary objective of all four programs is to help women enter prenatal care early and to make regular prenatal care visits.

The report cites the following notable components of the local programs:

- Hiring, training, and supervising paraprofessional outreach staff (all);
- Establishing and maintaining relations between health care staff and outreach/case coordination staff, if the latter are organizationally separate from the care provider (Boston, D.C., Hartford);
- Community outreach, particularly case finding (D.C.);
- Reinforcement of health teaching (D.C., Hartford);
- Administrative database for individual outreach and case coordination (D.C.);
- Strategies and techniques for individual outreach and case coordination (all);
- Strategies and techniques for working with recent immigrants (Boston);
- Structuring outreach and case coordination services as part of a health department (Boston); and
- Evaluation of outreach/case coordination services (D.C., Hartford).

Program: *HealthStart*. The program provides expanded maternity care services to Medicaid-eligible women (up to 100 percent of the federal poverty level).

Services: The maternity care service package includes medical care according to ACOG standards (including delivery), laboratory services, nutrition assessment and counseling, social/psychological assessment and counseling, health education, and case coordination services (including active follow-up).

Outreach: Large-scale community education and outreach is conducted throughout the state to acquaint clients and providers with the new program and the importance of prenatal care. The effort includes a media campaign, hotline, and written materials for providers and clients.

Providers: All Medicaid providers are eligible to seek approval as a "comprehensive provider." Reimbursement to comprehensive providers is higher than the Medicaid rates regularly offered for prenatal care and delivery. For a private physician or freestanding clinic, medical care is reimbursed at $602 instead of at the regular Medicaid rate of $236. HealthStart providers can also collect $350 per patient for health support services, bringing the total reimbursement for maternity care to $952.

Results: The program, which began in February 1988, has a built-in evaluation plan to measure both process and outcome components. Program activities will be monitored during the first three years of operation to evaluate progress, strengths, and weaknesses. Annual reports will be made to the governor and the legislature. Specifically, the evaluation is to determine how successful the program is in serving the high-risk population, whether providers are delivering the services that they agreed to provide, what the barriers are in delivering the services, and whether the program is effective in improving access to services and health outcomes, including low birthweight.

Program Contact:
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Legislative Contact:
Office of Legislative Services
(609) 292-1646

Appendix B
Resources for Further Information

Video

Your Children, Our Children: Life and Death
KTCA 2
1640 Como Avenue
St. Paul, MN 55108-2786
(612) 646-4611

This 28-minute video, produced by public television, focuses on the role of prenatal care in reducing the incidence of low birthweight babies and the number of infant deaths. It highlights a program in rural Louisiana and contrasts the availability of prenatal care in two counties.

Organizations

American College of Obstetricians and Gynecologists
409 12th Street, S.W.
Washington, D.C. 20024-2188
(202) 638-5577

Children's Defense Fund
122 C Street, N.W.
Washington, D.C. 20001
(202) 628-8787

Healthy Mothers/Healthy Babies
600 Maryland Ave., S.W.
Suite 300 E
Washington, D.C. 20024
(202) 863-2458

March of Dimes Birth Defects Foundation
Box 2000
White Plains, NY 10602
(914) 428-7100
(Also state chapters)

National Center for Clinical Infant Programs
733 15th St., N.W.
Suite 912
Washington, D.C. 20005
(202) 347-0308

National Commission to Prevent Infant Mortality
Switzer Building, Room 2006
330 C Street, S.W.
Washington, D.C. 20201
(202) 472-1364

National Governors' Association
444 North Capitol Street
Washington, D.C. 20001-1572
(202) 624-5300

National Perinatal Association
101½ South Union St.
Alexandria, VA 22314
(703) 549-5523

Southern Regional Project on Infant Mortality
444 North Capitol Street, N.W.
Suite 240
Washington, D.C. 20001
(202) 624-5897

Notes

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3. *PRENATAL CARE: Medicaid Recipients and Uninsured Women Obtain Insufficient Care*, United States General Accounting Office, September 1987, p. 2.
4. *Death Before Life: The Tragedy of Infant Mortality*, National Commission to Prevent Infant Mortality, August 1988, p. 8.
5. *Preventing Low Birthweight: SUMMARY*, Institute of Medicine, National Academy Press, Washington, D.C., 1985, p. 1.
6. Dana Hughes et al., *The Health of America's Children: Maternal and Child Health Data Book*, Children's Defense Fund, 1988, pp. 68-69.
7. Ibid., p. 30.
8. *Preventing Low Birthweight*, p. 5.
9. Ibid., p. 7.
10. Ibid., p. 15.
11. Martin Tolchin, "Minority Poverty on the Rise Even as White Poor Decrease in U.S.," *The New York Times*, September 1, 1988, p. 9.
12. Hughes et al., *The Health of America's Children*, pp. 73, 75.
13. Ibid., pp. 28-29.
14. *Preventing Low Birthweight*, p. 8.
15. Dana Hughes and Sara Rosenbaum, *Non-Financial Barriers to Prenatal Care*, Children's Defense Fund, Washington, D.C., April 1987, p. 16.
16. "Michigan plan aims at poor mothers," *STATE CAPITALS* 42, no. 22 (May 30, 1988): 3-4.
17. *Preventing Low Birthweight*, p. 1.
18. *Healthy Children*, p. 4.
19. Hughes et al., *The Health of America's Children*, p. 30.
20. *Healthy Children*, p. 34.
21. Ibid., p. 45.
22. Ibid., p. 83.
23. Peter C. van Dyck, "Utah's Prenatal Initiative Program," *FHS FOCUS* 6, no. 3, Family Health Services Division, Utah Department of Health, January 1988.
24. *Healthy Children*, p. 5.
25. Ibid., p. 9.
26. Ibid., p. 90.
27. *PRENATAL CARE*, p. 18.
28. Ibid., p. 19.
29. Ibid., p. 32.
30. Hughes and Rosenbaum, *Non-Financial Barriers to Prenatal Care*, p. 5.
31. *PRENATAL CARE*, p. 52.
32. Ibid.
33. "Cost of malpractice insurance depletes ranks of obstetricians," *Rocky Mountain News*, July 9, 1988, p. 52.
34. Tinker Ready, "Low MediCal rates mean less care for expectant mothers," *Health Week*, June 6, 1988, p. 9.
35. *Preventing Low Birthweight*, p. 19.
36. Hughes et al., *The Health of America's Children*, p. 28.
37. *Preventing Low Birthweight*, p. 8.
38. Hughes et al., *The Health of America's Children*, p. 29.
39. *Adolescent Pregnancy in the South*, The Southern Regional Project on Infant Mortality, Washington, D.C., April 1988, p. 11.
40. Ibid., p. 13.
41. "Cost of malpractice insurance depletes ranks of obstetricians."
42. "Medical Liability - Its Impact on Women's Health Care," March 1988, a two-page handout provided by the American College of Obstetricians and Gynecologists.
43. *Blessed Events and the Bottom Line: Financing Maternity Care in the United States*, The Alan Guttmacher Institute, New York, 1987, p. 21.
44. John Sanko, "Court expands insurance for pregnancy," *Rocky Mountain News*, July 19, 1988, p. 6.
45. *Blessed Events and the Bottom Line*, p. 46.

46. *Medicaid Options: State Opportunities and Strategies for Expanding Eligibility*, American Hospital Association, Chicago, Illinois, 1987, p. 46.
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50. *Preventing Low Birthweight*, p. 22.
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58. *Southern Regional Task Force on Infant Mortality: FINAL REPORT FOR THE CHILDREN OF TOMORROW*, November 1985, p. 25.
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60. Ibid., pp. 2, 5.
61. Ibid., p. 57.
62. Hughes et al., *The Health of America's Children*, p. 78.
63. Laurie True, "Formula Rebates Expand WIC Coverage," *Youth Law News* IX, no. 3 (May - June 1988): 2-3.
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66. Tolchin, "Minority Poverty on the Rise Even as White Poor Decrease in U.S."

Glossary

ACOG—American College of Obstetricians and Gynecologists.

Adequacy of Care—The Institute of Medicine prenatal care index (developed by D. Kessner) classifies the adequacy of prenatal care by the number of prenatal visits in relation to the duration of the pregnancy and the timing of the first visit. Basically, according to this widely used index, a woman's prenatal care is classified as follows:

- "adequate" if it begins in the first trimester *and* includes nine or more visits for a pregnancy of 36 or more weeks;
- "intermediate" if it begins in the second trimester *or* includes five to eight visits for a pregnancy of 36 or more weeks; and
- "inadequate" if it begins in the third trimester *or* includes four or fewer visits for a pregnancy of 34 or more weeks.[65]

Federal Poverty Level (FPL)—In 1987, the average federal poverty level for a family of four was $11,611. The FPL ranged from $5,800 or less for one person, to $23,000 for a family of nine.[66]

GAO—United States General Accounting Office.

IOM—Institute of Medicine.

MCH—The federal Maternal and Child Health block grant program.

OTA—Congress of the United States, Office of Technology Assessment.

WIC—The Federal Supplemental Food Program for Women, Infants, and Children.

Annotated Bibliography

Alan Guttmacher Institute. *Blessed Events and the Bottom Line: Maternity Care in the United States.* New York: The Alan Guttmacher Institute, 1987.

This publication provides pregnancy and birth statistics for various populations, including teenagers, uninsured women, and unmarried women. It also discusses government programs, private health insurance, and uncompensated care costs for women without insurance. The report makes recommendations for public and private actions to increase access to and financing for maternity care (60 pages).

Food Research and Action Center. *WIC FACTS: National and State Profiles of the Special Supplemental Food Program for Women, Infants and Children.* Washington, D.C.: Food Research and Action Center, April 1988.

This report describes the WIC program and who is eligible for it, and provides data for all 50 states, U.S. territories, and Indian tribal organizations (168 pages).

Hill, Ian T. *REACHING WOMEN WHO NEED PRENATAL CARE.* Washington, D.C.: National Governors' Association, 1988.

This publication describes barriers to prenatal care and what policy makers and program administrators can do to overcome the barriers, including a detailed discussion of outreach strategies to improve client participation in public programs (123 pages).

Hughes, Dana, and Butler, Elizabeth. *THE HEALTH OF AMERICA'S BLACK CHILDREN.* Washington, D.C.: Children's Defense Fund, 1988.

This report describes the health status of black children in the United States, provides state-specific data for several health indicators, and makes recommendations for improving the health status of black children (42 pages).

Hughes, Dana; Johnson, Kay; Rosenbaum, Sara; Butler, Elizabeth; and Simons, Janet. *The Health of America's Children: Maternal and Child Health Data Book.* Washington, D.C.: Children's Defense Fund, 1988.

This book provides background information on infant mortality and low birthweight and contains dozens of tables comparing states' data. State-by-state comparisons include ratings for infant mortality, low birthweight, teen births, adequacy of prenatal care, and progress toward meeting maternal and child health objectives established by the surgeon general. In addition, each state is profiled in a state fact sheet section (265 pages).

Institute of Medicine. *Preventing Low Birthweight: SUMMARY.* Washington, D.C.: National Academy Press, 1985.

This summary report presents information about the Institute of Medicine's study to determine whether opportunities exist to reduce the incidence of low birthweight in the United States. The report defines low birthweight, describes numerous risk factors that increase the likelihood of giving birth to a low birthweight infant, addresses the impact of prenatal care, and recommends improvements for accessibility to and the content of prenatal care (41 pages).

Lazarus, Wendy. *Back to Basics 1988: Strategies for Investing in the Health of California's Next Generation.* Santa Monica, Calif.: Southern California Child Health Network, 1988.

This publication describes findings and recommendations concerning the health of California's children, with an emphasis on prenatal care. Although the focus is on one state, the report's analysis, data, and recommendations may be useful to other states interested in doing similar studies (114 pages).

Miller, C. Arden. *Maternal Health and Infant Survival.* Washington, D.C.: National Center for Clinical Infant Programs, July 1987.

This publication analyzes medical and social services to pregnant women, newborns, and their families in 10 European countries, with implications for policy and practice in the United States (52 pages).

National Commission to Prevent Infant Mortality. *Death Before Life: THE TRAGEDY OF INFANT MORTALITY.* Washington, D.C.: The National Commission to Prevent Infant Mortality, August 1988.

This report describes the problem of infant mortality in the United States and makes recommendations for federal government, state and local government, and private sector actions to reduce its incidence (40 pages).

Southern Regional Project on Infant Mortality. *ADOLESCENT PREGNANCY IN THE SOUTH.* Washington, D.C.: Southern Regional Project on Infant Mortality, April 1988.

This report examines the economic, health, social, and educational problems associated with adolescent pregnancy and childbearing. The publication provides data from 17 southern states and describes statewide prevention initiatives in those states (44 pages).

Southern Regional Task Force on Infant Mortality. *FINAL REPORT For the Children of Tomorrow.* Southern Regional Task Force on Infant Mortality, November 1985.

This report identifies and describes dozens of recommendations to reduce infant mortality and morbidity in the South (44 pages).

U.S. General Accounting Office. *PRENATAL CARE: Medicaid Recipients and Uninsured Women Obtain Insufficient Care,* GAO/HRD-87-137. Gaithersburg, Maryland: U.S. General Accounting Office, September 1987.

This report contains results of interviews with 1,157 Medicaid-enrolled and uninsured women to determine whether they experience difficulties in obtaining access to prenatal care. The publication also discusses options for improving access to prenatal care (176 pages).

U.S. Congress, Office of Technology Assessment. *Healthy Children: Investing in the Future,* OTA-H-345. Washington, D.C.: U.S. Government Printing Office, February 1988.

This report examines the effectiveness and costs of selected strategies for promoting and maintaining the health of children, including prenatal care. The report provides an overview of children's health status and access to health care and contains a 20-page section on prenatal care, as well as a 19-page appendix containing prenatal care background information (301 pages).

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